ETSI TS 102 901 V4.1.1 (2012-05)



IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; IMS NNI interoperability test descriptions for RCS

Reference RTS/INT-00062

2

Keywords

IMS, testing

ETSI

650 Route des Lucioles F-06921 Sophia Antipolis Cedex - FRANCE

Tel.: +33 4 92 94 42 00 Fax: +33 4 93 65 47 16

Siret N° 348 623 562 00017 - NAF 742 C Association à but non lucratif enregistrée à la Sous-Préfecture de Grasse (06) N° 7803/88

Important notice

Individual copies of the present document can be downloaded from: http://www.etsi.org

The present document may be made available in more than one electronic version or in print. In any case of existing or perceived difference in contents between such versions, the reference version is the Portable Document Format (PDF). In case of dispute, the reference shall be the printing on ETSI printers of the PDF version kept on a specific network drive within ETSI Secretariat.

Users of the present document should be aware that the document may be subject to revision or change of status. Information on the current status of this and other ETSI documents is available at http://portal.etsi.org/tb/status/status.asp

If you find errors in the present document, please send your comment to one of the following services: http://portal.etsi.org/chaircor/ETSI_support.asp

Copyright Notification

No part may be reproduced except as authorized by written permission. The copyright and the foregoing restriction extend to reproduction in all media.

> © European Telecommunications Standards Institute 2012. All rights reserved.

DECTTM, **PLUGTESTS**TM, **UMTS**TM and the ETSI logo are Trade Marks of ETSI registered for the benefit of its Members. **3GPP**TM and **LTE**TM are Trade Marks of ETSI registered for the benefit of its Members and of the 3GPP Organizational Partners.

GSM® and the GSM logo are Trade Marks registered and owned by the GSM Association.

Content

Intelle	ectual Property Rights	6
Forew	ord	6
1	Scope	7
2	References	7
2.1	Normative references	7
2.2	Informative references	
3	Abbreviations	8
4	IMS NNI Interoperability Test Specification	9
4.1	Introduction	
4.2	Test Prerequisites	
4.3	Test Infrastructure	
4.3.1	Core IMS Nodes	9
4.3.2	External IMS core Nodes	9
4.3.2.1		
4.3.2.2		
4.3.2.2		
4.3.2.2		
4.3.2.2	∂	
4.3.3	Test Configurations	
4.4	Use Cases	
4.4.1	Capability discovery	
4.4.1.1	r	10
4.4.1.2		10
4.4.1.3	with CF_INT_AS UC_RCS_1_R: SIP message flow for Capability discovery process through OPTIONS message	10
4.4.1.3	with CF_ROAM_AS (OPTIONAL)	11
4.4.2	Social Presence service	
4.4.2.1		
4.4.2.2		
4.4.2.2		
4.4.2.2	1	
	CF_INT_AS	13
4.4.2.2		
	with CF_ROAM_AS (OPTIONAL)	
4.4.2.3	I	
4.4.2.3		
4.4.2.3		20
4.4.2.3		
	CF_ROAM_AS (OPTIONAL)	
4.4.3	IM/chat service	
4.4.3.1	1	
4.4.3.2	1	
4.4.3.2 4.4.3.2		24
4.4.3.2	(OPTIONAL)	28
4.4.3.3		
4.4.3.3		
4.4.3.3		
	(OPTIONAL)	
4.4.3.4		
4.4.3.4		
4.4.3.4		
4.4.3.5	Switching to 1-to-many chat	51
4.4.3.5	UC_RCS_7_I: SIP message flow for switching to 1-to-many chat with CF_INT_AS	51

4.4.3.5.2	UC_RCS_7_R: SIP message flow for switching to 1-to-many chat with CF_ROAM_AS (OPTIONAL)	56
4.4.4	RCS-e services during a call	
4.4.4.1	Content sharing	
4.4.4.1.1	UC_RCS_8_I: SIP message flow for Content sharing with CF_INT_CALL	61
4.4.4.1.2	UC_RCS_8_R: SIP message flow for Content sharing with CF_ROAM_CALL (OPTIONAL)	64
4.4.5	File transfer service	
4.4.5.1	UC_RCS_9_I: SIP message flow for File transfer with CF_INT_AS	
4.4.5.2	UC_RCS_9_R: SIP message flow for File transfer with CF_ROAM_AS (OPTIONAL)	
4.5	Test Descriptions.	
4.5.1	Capability discovery	
4.5.1.1	Capability discover through OPTIONS - User B is Registered - interworking	
4.5.1.2	Capability discover through OPTIONS - User B is Registered - roaming	
4.5.1.3	Capability discover through OPTIONS- User B is not Registered - interworking	
4.5.1.4	Capability discover through OPTIONS - User B is not provisioned for RCS-e - interworking	
4.5.2	Social Presence	
4.5.2.1	Watcher subscription for presence event notification in visited network	
4.5.2.2	Watcher subscription to presence event notification in home network	
4.5.2.3	Unsuccessful watcher subscription to presence event notification in home network	
4.5.2.4	Watcher subscription to resource list in visited network	
4.5.2.5	Watcher subscription to resource list in home network	
4.5.3	IM/Chat service	96
4.5.3.1	1-to-1 chat standard procedure	96
4.5.3.1.1	1-to-1 chat standard procedure - interworking	96
4.5.3.1.2	1-to-1 chat standard procedure - roaming (optional)	101
4.5.3.2	Several messages prior to establishment of 1-to-1 chat	107
4.5.3.2.1	Several messages prior to establishment of 1-to-1 chat - interworking	107
4.5.3.2.2	Several messages prior to establishment of 1-to-1 chat - roaming (optional)	112
4.5.3.3	Switching to 1-to-many chat	
4.5.3.3.1	Switching to 1-to-many chat - interworking	
4.5.3.3.2	Switching to 1-to-many chat - roaming (optional)	122
4.5.3.4	File transfer within 1-to-1 chat	
4.5.3.4.1	File transfer within 1-to-1 chat - interworking	
4.5.3.4.2	File transfer within 1-to-1 chat - roaming (optional)	
4.5.3.5	File transfer rejection within 1-to-1 chat	
4.5.3.5.1	File transfer rejection within 1-to-1 chat - interworking	
4.5.3.5.2	File transfer rejection within 1-to-1 chat - roaming (optional)	
4.5.3.6	1-to-many chat	
4.5.3.6.1	1-to-many chat - interworking	
4.5.3.6.2	1-to-many chat - roaming (optional)	
4.5.3.7	Adding participants to an already established 1-to-many chat session	
4.5.3.7.1	Adding participants to an already established 1-to-many chat session - interworking	
4.5.3.7.2	Adding participants to an already established 1-to-many chat session - roaming (optional)	
4.5.4	RCS-e services during a call	
4.5.4.1 4.5.4.1.1	Video sharing Video sharing- interworking	
4.5.4.1.1	0 0	
4.5.4.2	Video sharing- roaming (optional) Video sharing rejection	
4.5.4.2.1	Video sharing rejection - interworking	
4.5.4.2.2	Video sharing rejection - roaming (optional)	
4.5.4.3	Pictures sharing	
4.5.4.3.1	Pictures sharing- interworking	
4.5.4.3.2	Pictures sharing- roaming (optional)	
4.5.4.4	Pictures sharing rejection	
4.5.4.4.1	Pictures sharing rejection - interworking	
4.5.4.4.2	Pictures sharing rejection- roaming (optional)	
4.5.4.5	Stop sharing pictures	
4.5.4.5.1	Stop sharing pictures - interworking	
4.5.4.5.2	Stop sharing pictures - roaming (optional)	
4.5.5	File transfer service	
4.5.5.1	Instant file transfer	198

h		
4		

4.5.5.1.1	Instant file transfer - interworking	
4.5.5.1.2	Instant file transfer - roaming (optional)	
4.5.5.2	Instant file transfer rejection	
4.5.5.2.1	Instant file transfer rejection - interworking	
4.5.5.2.2	Instant file transfer rejection - roaming (optional)	
4.5.5.3	Stop file transfer	
4.5.5.3.1	Stop file transfer - interworking	
4.5.5.3.2	Stop file transfer - roaming (optional)	
5 M	SRP Test Specification	
5.1	Introduction	
5.2	Test Prerequisites	
5.2.1	Authorization over MSRP	
5.3	Use Cases	
5.3.1	Chat 1 to 1 via MSRP	
5.3.2	Chat 1 to many via MSRP	
5.3.2.1	Chat 1 to many via MSRP - Interworking	
5.3.2.2	Chat 1 to many via MSRP - Roaming	
5.3.2.3	Chat 1 to many via MSRP to additional user - Interworking	
5.3.2.4	Chat 1 to many via MSRP to additional user - Roaming	
5.3.3	Image data via MSRP	
5.4	Test Descriptions	
5.4.1	Chat 1 to 1 procedure via MSRP	
5.4.2	Chat 1 to many procedure via MSRP	
5.4.3	Image transfer procedure via MSRP	
Annex A	(normative): Zip file with TPLan code	
History.		

Intellectual Property Rights

IPRs essential or potentially essential to the present document may have been declared to ETSI. The information pertaining to these essential IPRs, if any, is publicly available for **ETSI members and non-members**, and can be found in ETSI SR 000 314: "Intellectual Property Rights (IPRs); Essential, or potentially Essential, IPRs notified to ETSI in respect of ETSI standards", which is available from the ETSI Secretariat. Latest updates are available on the ETSI Web server (http://ipr.etsi.org).

Pursuant to the ETSI IPR Policy, no investigation, including IPR searches, has been carried out by ETSI. No guarantee can be given as to the existence of other IPRs not referenced in ETSI SR 000 314 (or the updates on the ETSI Web server) which are, or may be, or may become, essential to the present document.

Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee IMS Network Testing (INT).

1 Scope

The present document specifies interoperability Test Descriptions (TDs) for Inter-IMS Network to Network Interface (II-NNI) interoperability testing for the Rich Communication Suite (RCS) related services based on RCS-e Advanced Communications Services and Client Specification [11]. The Stage 3 Session Initiation Protocol (SIP) and Session Description Protocol (SDP) standard, TS 124 229 [1] and Inter-IMS Network to Network Interface, TS 129 165 [7] *define the functionalities on which the RCS services are based. TDs have been specified on the basis of the Test Purposes (TPs) and Test Suite Structure (TSS) presented in TS 186 011-1 [2]. TP fragments presented in the present document as part of TDs are defined using the TPLan notation of ES 202 553 [5]. TDs have been written based on the test specification framework described in TS 102 351 [3] and the interoperability testing methodology defined in TS 102 237-1 [4], i.e. interoperability testing with a conformance relation.*

NOTE: Requirements pertaining to a UE or an AS implementation or IMS core network requirements that can only be observed at the interface between UE and IMS CN are explicitly not within the scope of the present document. The latter requirements have been dealt with from a UE and conformance perspective in TS 134 229-1 [6].

2 References

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the reference document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long term validity.

2.1 Normative references

The following referenced documents are necessary for the application of the present document.

[1]	ETSI TS 124 229 (V8.10.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3 (3GPP TS 24.229 version 8.10.0 Release 8)".
[2]	ETSI TS 186 011-1 (V3.1.1): "IMS Network Testing (INT); IMS NNI InteroperabilityTest Specifications; Part 1: Test Purposes for IMS NNI Interoperability".
[3]	ETSI TS 102 351: "Methods for Testing and Specification (MTS); Internet Protocol Testing (IPT); IPv6 Testing: Methodology and Framework".
[4]	ETSI TS 102 237-1: "Telecommunications and Internet Protocol Harmonization Over Networks (TIPHON) Release 4; Interoperability test methods and approaches; Part 1: Generic approach to interoperability testing".
[5]	ETSI ES 202 553: "Methods for Testing and Specification (MTS); TPLan: A notation for expressing Test Purposes".
[6]	ETSI TS 134 229-1 (V8.5.0): "Universal Mobile Telecommunications System (UMTS); LTE; Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Part 1: Protocol conformance specification (3GPP TS 34.229-1 version 8.5.0 Release 8)".
[7]	ETSI TS 129 165 (V8.4.0): "Digital cellular telecommunications system (Phase 2+); Universal Mobile Telecommunications System (UMTS); LTE; Inter-IMS Network to Network Interface (NNI) (3GPP TS 29.165 version 8.4.0 Release 8)".

- [8] RCS-e Advanced Communications: "Services and Client Specification. Version 1.1".
- [9] ETSI TS 186 011-2 (V3.1.1): "IMS Network Testing (INT); IMS NNI Interoperability Test Specifications; Part 2: Test Description for IMS NNI Interoperability".
- [10] IETF RFC 4975: "The Message Session Relay Protocol (MSRP)".
- [11] IETF RFC 4976: "Relay Extensions for the Message Session Relay Protocol (MSRP)".
- [12] IETF RFC 6135: "An Alternative Connection Model for the Message Session Relay Protocol (MSRP)".
- [13] IETF RFC 5547: "A Session Description Protocol (SDP) Offer/Answer Mechanism to Enable File Transfer".

2.2 Informative references

The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

Not applicable.

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

	1
3GPP	3 rd Generation Partnership Project
AS	(IMS) Application Server
CF	(Test) ConFiguration
CFW	Call FloW
CN	Core Network
CSCF	Call Session Control Function
DNS	Domain Name System
FQDN	Full Qualified Domain Name
HSS	Home Subscriber Server
IBCF	Interconnection Border Control Gateway
II-NNI	Inter-IMS Network to Network Interface
IM	Instant Messaging
IMS	IP Multimedia Subsystem
IOI	Inter Operator Identifier
IP	Internet Protocol
ISC	IMS Service Control
MRFC	Multimedia Resource Function Controller
MRFP	Multimedia Resource Function Processor
NNI	Network-to-Network Interface
P-CSCF	Proxy CSCF
РО	Point of Observation
PS	Presence Server
RCS	Rich Communication Suite
RLS	Resource List Server
S-CSCF	Serving CSCF
SDP	Session Description Protocol
SIP	Session Initiation Protocol
SUT	System Under Test
TD	Test Description
TP	Test Purpose
TPLan	Test Purpose Notation
TSS	Test Suite Structure
UC	Use Case
UE	User Equipment
	1 1

URI	Uniform Record Identifier
XMDS	XML Document Management Server

4 IMS NNI Interoperability Test Specification

4.1 Introduction

The IMS NNI Interoperability Test Descriptions (TDs) defined in the following clauses are derived from the Test Purposes (TPs) specified in TS 186 011-1 [2]. *The TDs cover the services (instant messaging, content sharing and presence) as defined in RCS-e specification* [8].

9

4.2 Test Prerequisites

The test prerequisites as described in TS 186 011-2 [9], clause 4.2, apply.

4.3 Test Infrastructure

The test infrastructure as described in TS 186 011-2 [9], clause 4.3, applies with the following additions.

4.3.1 Core IMS Nodes

4.3.2 External IMS core Nodes

4.3.2.1 HSS

Table 1 of TS 186 011-2 [9], clause 4.3.1.5.2, has to be extended by the following users for RCS services.

Table 1: Additional HSS sample user pro	ofiles for RCS
---	----------------

Private Identity	Public Identity 1 (SIP URI)	Public Identity 2 (Tel URI)	Default Public Identity	Filter criteria
userPRES_priv	userPRES	na	1	contact Presence AS
userIM_priv	userIM	na	1	contact IM AS for Instant Messaging
userFT_priv	userFT	na	1	contact IM AS for File Transfer
userSHARE_priv	userSHARE	na	1	

4.3.2.2 Specific Application Servers for RCS-e

Interworking between external Application Servers (AS) and the IMS core is under the scope of the present document. The ISC interface between the S-CSCF and the AS is used as a Point of Observation (PO) for NNI interoperability tests.

4.3.2.2.1 Presence Server

The presence server is an optional AS that acts as an intermediate for the user to provide Social Presence information to other users and other users to subscribe or get Social Presence information of a certain user, i.e. Presentity.

4.3.2.2.2 IM Server

The IM server is an AS within the IMS architecture that provides the IM service for the subscribers. It is responsible for a set of functions such as the control of the session setup, the enforcement of policies related to incoming or outgoing IM, the provision of information related to group members. Optionally the IM server may support "store and forward" feature.

4.3.2.2.3 Node Configuration

The AS should be configured to support the pre-requisites outlined in TS 186 011-2 [9], clause 4.2. The test descriptions in the present document assume that an AS supports the use of the IM/chat service and the following optional services: Social Presence, RCS-e services during a call and File transfer (see RCS-e descriptions in [8]). In the case that an AS does not support one or more of these services, only a selected subset of the test descriptions in the present document should be used for IMS core network interoperability testing, i.e. test descriptions which do not contain any pass criteria related to these supplementary services.

10

4.3.3 Test Configurations

The test configurations as described in TS 186 011-2 [9] clause 4.3.4 apply. It should be mentioned that test configurations for roaming scenarios are considered as optional.

4.4 Use Cases

In addition to the Use Cases in the present clause the Use Cases as described in TS 186 011-2 [9], clause 4.4 apply. It should be mentioned that Use Cases for roaming scenarios are considered as optional.

4.4.1 Capability discovery

4.4.1.1 General description

According to the RCS-e specification [8] the capability or service discovery mechanism as the main process for retrieving the subset RCS-e services available for other contacts is based on two methods:

- capability discovery process through OPTIONS message;
- capability discovery via presence.

Capability discovery process through OPTIONS message Use Cases are described in clauses 4.4.1.2 and 4.4.1.3.

The use of capability discovery via presence method assumes that user additionally subscribed to an optional Social Presence service. In this case capability discovery should be performed using Social Presence service procedures. Use Cases for Social Presence services including capability discovery issues are described in clause 4.4.2.

It should be mentioned that in both capability discovery methods UE A and UE B should be registered on corresponding IMS networks A and B depending on the test scenarios (interworking and roaming).

4.4.1.2 UC_RCS_1_I: SIP message flow for Capability discovery process through OPTIONS message with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_INT_AS
1	User A selects a contact of user B in the phone address book	Step 1
2	User B is informed about user A capabilities	Step 7
3	User A is informed about user B capabilities	Step 13

The expected call flow sequence is:

Step	Direction								Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2			→						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6							→		OPTIONS	IMS_B forwards OPTIONS to UE_B
7										User B is informed about user A capabilities
8						(200 OK	UE_B responds with 200 OK to IMS_B with Contact header containing user B capabilities (RCS-e services Tags)
9					←	_			200 OK	IMS_B forwards 200 OK to IBCF_B
10				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
11			←						200 OK	IBCF_A forwards 200 OK to IMS_A
12		←							200 OK	IMS_A forwards 200 OK to UE_A
13										User A is informed about user B capabilities

4.4.1.3 UC_RCS_1_R: SIP message flow for Capability discovery process through OPTIONS message with CF_ROAM_AS (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_INT_AS
1	User A selects a contact of user B in the phone address book	Step 1
2	User B is informed about user A capabilities	Step 10
3	User A is informed about user B capabilities	Step 19

The expected call flow sequence is:

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	B C F B	I M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2			→						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4				-	\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5									OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6					←				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
7				←					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
8			←						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
9							→		OPTIONS	IMS_A forwards OPTIONS to UE_B
10										User B is informed about user A capabilities
11			←						200 OK	UE_B responds with 200 OK to IMS_A with Contact header containing user B capabilities (RCS-e services Tags)
12				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
13					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
14						<i></i>			200 OK	IBCF_B forwards 200 OK to IMS_B
15					←				200 OK	IMS_B forwards 200 OK to IBCF_B
16				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
17			←						200 OK	IBCF_A forwards 200 OK to IMS_A
18		←							200 OK	IMS_A forwards 200 OK to UE_A
19	←	_								User A is informed about user B capabilities

4.4.2 Social Presence service

4.4.2.1 General description

According to RCS-e specification [11] the Social Presence service is assumed to be optional.

If the Social Presence service is implemented on the network there could be also provided the capability discovery mechanism via presence as mentioned in the clause 4.4.1. In all Social Presence service Use Cases provided below the capability discovery issues are considered.

The list of Use Cases for Social Presence service include:

- Watcher subscription to presence event notification;
- Watcher subscription to resource list.

All of the Use Cases for Social Presence service in the present document include procedures of one user authorizing another user to see its Social Presence information.

4.4.2.2 Watcher subscription to presence event notification

4.4.2.2.1 Description

UE_B is configured to receive notifications with watcher information. UE_B publishes its presence information. UE_A subscribes to presence information state changes of UE_B. This test requires the use of application server in IMS_B (Presence Server). The call flow path and node configuration for this use case corresponds to CF_INT_AS in case of interworking and CF_ROAM_AS (OPTIONAL) in case of roaming.

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS	CF_ROAM_AS (OPTIONAL)
1	User B publishes presence and capability information including	Step 1	Step 1
	capabilities		
2	User B is informed of its presence status update	Step 6	Step 12
3	User A selects a contact of user B in the phone address book	Step 7	Step 13
4	User B is informed about user A capabilities	Step 13	Step 22
5	User A is informed about user B capabilities	Step 19	Step 31
6	User A subscribes to presence and capability information from	Step 20	Step 32
	User B		
7	SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B	Step 39	Step 51
	indicating the change to the watcher information subscriber		
8	User B receives an authorization request from User A to see its	Step 44	Step 62
	own presence and capability information		
9	User B authorizes user A to be informed of its own presence and	Step 45	Step 63
	capability information		
10	User A is informed of user B presence and capability information	Step 54	Step 72
11	User A sees user B presence and capability information	Step 59	Step 83

4.4.2.2.2 UC_RCS_2_I: SIP message flow for watcher subscription to presence event notification with CF_INT_AS

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	⊢ ⊠ ∿ A	I B C F A	- всғв	I ⊠ S B	A S B	U E B	U s r B		
1												User B publishes presence and capability information including capabilities
2							←				PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements and capabilities
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B
6 7												User B is informed of its presence status update User A selects a contact of user B in the phone address book

Step					Direct	ion					Message	Comment
	U	U	Α	I	Ι	Ι	I	Α	U	U		
	S	E A	S A	M S	B C	B C	M S	S B	E B	S		
	e r	A	A	A	F	F	ъ В	Р	Б	e r		
	Â				A	В	_			В		
8											OPTIONS	UE_A sends OPTIONS to IMS_A
												with Accept-contact header containing user A capabilities
				→								(RCS-e services Tags and the Tag
												indicating support of discovery via
9											OPTIONS	presence) IMS_A forwards OPTIONS to
9					→						OFTIONS	IBCF_A
10						_					OPTIONS	IBCF_A forwards OPTIONS to
11						1					OPTIONS	IBCF_B
11							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
12									``		OPTIONS	IMS_B forwards OPTIONS to
10								_	1			UE_B
13												User B is informed about user A capabilities
14											200 OK	UE_B responds with 200 OK to
												IMS_B with Contact header containing user B capabilities
							←					(RCS-e services Tags and the Tag
												indicating support of discovery via
15											200 OK	presence) IMS_B forwards 200 OK to
						<u> </u>						IBCF_B
16					←						200 OK	IBCF_B forwards 200 OK to IBCF_A
17				(200 OK	IBCF_A forwards 200 OK to IMS_A
18		←									200 OK	IMS_A forwards 200 OK to UE_A
19												User A is informed about user B
												capabilities
20												User A subscribes to presence and capability information from User B
21											SUBSCRIBE	UE_A sends ANONYMOUS
				→								SUBSCRIBE for "User B
												presence" event with expiry time of 0 to IMS_A
22					_						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
- 00					1							to IBCF_A
23						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
24							→				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
25											SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
								\rightarrow				to IMS_B AS (PS)
26							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
27						(200 OK	IMS_B forwards the 200 OK
20											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
28					←						200 UN	response to IBCF_A
29				k	_						200 OK	IBCF_A forwards the 200 OK
30											200 OK	response to IMS_A IMS_A forwards the 200 OK
31											NOTIFY	response to UE_A IMS_B AS sends NOTIFY to
51						←						IBCF_B
32					←						NOTIFY	IBCF_B forwards NOTIFY to
33											NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
				←								IMS_A
		•	•	•		•	•	•		•		

ETSI

Step					Direc	tion					Message	Comment
	U	U	A S	I	Ι		I	A S	UE	U		
	s e	E	A	M S	B C	B C	M S	ъ В	B	s e		
	r			A	F	F	В			r		
24	A				Α	В				В	NOTIFY	
34		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
35				→							200 OK	UE_A responds with a 200 OK to IMS_A
36					→						200 OK	IMS_A forwards the 200 OK to IBCF_A
37						\rightarrow					200 OK	IBCF_A forwards the 200 OK to
38								→			200 OK	IBCF_B IBCF_B forwards the 200 OK
39												response to IMS_B AS SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
40							←	_			NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the change to the watcher information
41											NOTIFY	subscriber IMS_B forwards the NOTIFY to
42									_		200 OK	UE_B UE_B responds with a 200 OK to
							←					IMS_B
43								\rightarrow			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
44												User B receives an authorization request from User A to see its own presence and capability information
45												User B authorizes user A to be informed of its own presence and capability information
46						←		_			NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
47					←						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
48				←	-						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
49		←	_	_							NOTIFY	IMS_A forwards the NOTIFY to UE_A
50				→							200 OK	UE_A responds with a 200 OK to IMS_A
51					→						200 OK	IMS_A forwards the 200 OK response to IBCF_A
52						\rightarrow					200 OK	IBCF_A forwards the 200 OK
53								_			200 OK	response to IBCF_B IBCF_B forwards the 200 OK
54												response to IMS_B AS User A is informed of user B presence and capability
55											NOTIFY	information IMS_B AS sends NOTIFY to
							←					IMS_B to indicate UE_B that subscription has been authorized
56									\rightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
57							<				200 OK	UE_B responds with a 200 OK to
58								_			200 OK	IMS_B IMS_B forwards the 200 OK
59												response to IMS_B AS User A sees user B presence and
												capability information

4.4.2.2.3 UC_RCS_2_R: SIP message flow for watcher subscription to presence event notification with CF_ROAM_AS (OPTIONAL)

Step					Directi	on					Message	Comment
	U	U	Α	I	Ι	Ι	I	Α	U	U	_	
	s e	E A	S A	M S	B C	B C	M S	S B	E B	s e		
	r	^	~	A	F	F	B	D	Б	r		
	Α				Α	В				В		
1												User B publishes presence and
2											PUBLISH	capability information UE_B sends PUBLISH with
2				<u> </u>	_						FUBLISH	information for all commonly
												supported presence elements
3					→						PUBLISH	IMS_A forwards the PUBLISH to IBCF_A
4											PUBLISH	IBCF_A forwards the PUBLISH to
						7						IBCF_B
5							→				PUBLISH	IBCF_B forwards the PUBLISH to IMS_B
6								→			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
7							,				200 OK	IMS_B AS responds with a 200 OK
												to IMS_B
8						←	_				200 OK	IMS_B forwards the 200 OK response to IBCF_B
9					←	_					200 OK	IBCF_B forwards the 200 OK
10											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
				< <u> </u>								response to IMS_A
11									\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
12												User B is informed of its presence
13												status update User A selects a contact of user B
												in the phone address book
14											OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-contact header
												containing user A capabilities
												(RCS-e services Tags and the Tag
												indicating support of discovery via presence)
15											OPTIONS	IMS_A forwards OPTIONS to
												IBCF_A
16											OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
17											OPTIONS	IBCF_B IBCF B forwards OPTIONS to
												IMS_B
18											OPTIONS	IMS_B forwards OPTIONS to IBCF_B
19											OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
20											OPTIONS	IBCF_A forwards OPTIONS to
21											OPTIONS	IMS_A IMS_A forwards OPTIONS to
												UE_B
22												User B is informed about user A capabilities
23											200 OK	UE_B responds with 200 OK to
												IMS_A with Contact header
												containing user B capabilities (RCS-e services Tags and the Tag
												indicating support via presence)
24											200 OK	IMS_A forwards 200 OK to
												IBCF_A

26 20 0K IBCF B 10KS B 27 28 200 0K IBCF B 10KS B 10KS B 28 200 0K IBCF A 10KS A <td< th=""><th>nent</th><th>Comment</th><th>Message</th><th></th><th></th><th></th><th>on</th><th>Directio</th><th>0</th><th></th><th></th><th></th><th>Step</th></td<>	nent	Comment	Message				on	Directio	0				Step
e A A S C C S B B e r 25 26 200 OK IBCF A forwards 2 IBCF B forwards 2 IBCF B forwards 2 26 200 OK IBCF B forwards 2 IBCF B forwards 2 IBCF B forwards 2 27 28 200 OK IBCF B forwards 2 IBCF A forwards 2 29 1 1 1 1 IBCF A forwards 2 30 1 200 OK IBCF B forwards 2 IBCF A forwards 2 31 200 OK IBCF A forwards 2 IBCF A forwards 2 32 200 OK IBCF A forwards 2 IBCF A forwards 2 33 34 34 34 34 34 34 34 35 36 37 38 37 38 39 36 39 38 39 38 39 38 39 38 39 38 39 38 39 38 30 30 30 30 30 30 30 30 30 30 30 30 30 30				-		-	l B	I	I			-	
A B B 25 26 200 OK IBCF A forwards 2 26 27 IMS B 200 OK IBCF B forwards 2 27 IMS B 200 OK IBCF A forwards 2 28 200 OK IBCF A forwards 2 29 IMS A 200 OK IBCF A forwards 2 30 30 IMS A 200 OK IBCF A forwards 2 30 30 IMS A 200 OK IBCF A forwards 2 30 30 IMS A 200 OK IMS A 32 IMS A Imformatic IMS A 200 OK IMS A 33 IMS A Imformatic IMS A 200 OK IMS A 200 OK IMS A 34 IMS A Imformatic IMS A 200 OK IMS A 200 OK IMS B A <				-									
25 26 26 27 27 28 29 200 OK 30 30 OK 31 30 OK 32 200 OK 33 32 34 33 35 36 36 37 37 36 38 37 39 37 34 36 36 37 37 36 36 37 37 36 36 37 37 36 37 37 38 37 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 39 30 30 31 30<						В							
26 27 27 28 27 28 29 200 OK 30 30 31 200 OK 32 200 OK 33 200 OK 34 200 OK 35 User A is informed capabilities 36 User A subscribes 37 User A subscribes 38 SUBSCRIBE 37 User A subscribes 38 User A subscribes 39 User A subscribes 40 User A subscribes 41 User A subscribes 42 User A subscribes 200 OK IMS B AS response 39 User A subscribes 39 User A subscribes 41 User A subscribes 42 User A is informed to to IMS B AS response to IBCF. 44 MS B AS response to IBCF. 44 MS B AS response to IBCF. 44 MOTIFY 47 IBCF. B forwards th response to IBCF. 48 MOTIFY 49 S00 OK	200 OK to	IBCF_A forwards 200 O	200 OK				<u>в </u>					A	25
27 28 28 29 30 30 31 200 OK 32 200 OK 33 200 OK 34 User A subscribes 35 User A subscribes 36 User A subscribes 37 SUBSCRIBE UE A sends ANO 36 User A subscribes Capability informatic 36 User A subscribes Capability informatic 36 User A subscribes Capability informatic 37 SUBSCRIBE IBCF A forwards the 0 to IMS_A SUBSCRIBE IMS_A forwards the 0 to IMS_B SUBSCRIBE IMS_A forwards the 10 IBCF_B SUBSCRIBE IMS_A forwards the 11 User A subscribes 200 OK IMS_B A forwards the 141 Vol IMS_B SUBSCRIBE IMS_A forwards the 142 Vol IMS_B A forwards the IBCF_B 200 OK IBCF_B 141 Vol IMS_A forwards the IBCF_B 200 OK IBCF_B 200 OK IBCF_B 200 OK IBCF_B 200 OK IBCF_B	200 OK to	IBCF_B forwards 200 O	200 OK										26
28 29 29 30 30 31 32 200 OK 31 User A subscribes 32 User A subscribes 33 User A subscribes 34 User A subscribes 35 User A subscribes 36 User A subscribes 37 SUBSCRIBE 36 USE A forwards the 37 SUBSCRIBE 38 SUBSCRIBE 39 SUBSCRIBE 40 UMS A forwards the 41 to IMS B AS (PS) 42 Coo OK 43 Monters 44 Monters 44 Monters 44 Monters 44 Monters 47 MS A forwards the 48 Monters 50 Coo OK 50	00 OK to	IMS_B forwards 200 OK	200 OK										27
29 30 31 <td< td=""><td>200 OK to</td><td>IBCF_B forwards 200 O</td><td>200 OK</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>28</td></td<>	200 OK to	IBCF_B forwards 200 O	200 OK										28
30 200 OK IMS_A forwards 20 31 32 User A is informed capability information subscribes 33 User A subscribes capability information capability information subscribes 34 SUBSCRIBE UE A sends ANON SUBSCRIBE for 'Up resence' event wind to IBCF_ A 35 SUBSCRIBE IBCF_B forwards th to IBCF_A 36 SUBSCRIBE IBCF_B forwards th to IBCF_A 37 SUBSCRIBE IMS_B forwards th to IBCF_B forwards th to IMS_B Forwards th to IMS_B AS (PS) 38 SUBSCRIBE IMS_B forwards th to IMS_B AS (PS) 39 COO OK IMS_B A forwards th response to IBCF_ 200 OK 44 MAT IBCF_B Ionwards th response to IBCF_ 200 OK IBCF_B Ionwards th response to IBCF_ 200 OK 44 MAT IBCF_B Ionwards th response to IBCF_ 200 OK IBCF_A Ionwards th IBCF_A Ionwards th IBCF_A Ionwards th IBCF_A Ionwards th IBCF_A Ionwards th IBCF_A 48 MOTIFY IBCF_A Ionwards th IBCF_A Ionwards th IBCF_A 200 OK IBCF_B Ionwards th IBCF_B Ion	200 OK to	IBCF_A forwards 200 O	200 OK										29
31 User A is informed capabilities 32 User A subscribes 33 User A subscribes 34 SUBSCRIBE 34 User A subscribes 35 SUBSCRIBE 36 User A subscribes 37 SUBSCRIBE 38 SUBSCRIBE 39 User A forwards the to IBCF - A forwards the to IMS_B 40 User A subscribes 41 User A forwards the to IMS_B 42 SUBSCRIBE 41 Tesponse to IBCF 42 SUBSCRIBE 44 Motifier B forwards the to IMS_B 44 Motifier B forwards the to IMS_A 44 Motifier B forwards the to IMS_A 44 Motifier B forwards the IBCF A forwards the IBCF B forwards the IBCF A forwards the IBCF B forwards the IBCF A forwards the IBCF B forwards	00 OK to UE A	IMS_A IMS_A forwards 200 OK	200 OK										30
32 User A subscribes 33 SUBSCRIBE 34 User A subscribes 34 SUBSCRIBE 35 User A subscribes 36 User A subscribes 36 User A subscribes 37 SUBSCRIBE 38 User A subscribes 39 User A subscribes 40 User A subscribes 41 User A subscribes 42 User A subscribes 44 User A subscribes 45 MOTIFY 46 MOTIFY 47 MS A forwards th BCF B forwards th BCF A forwards th BCF A forwards th BCF A forwar		User A is informed abou											
33 SUBSCRIBE UE_A sends ANON 34 34 UE_A sends ANON 35 SUBSCRIBE for "L presence" event will 36 SUBSCRIBE IMS_A forwards the to IBCF_A forwards the to IBCF_B forwards the to IMS_B and the to IMS_B		User A subscribes to pre capability information fro											32
34 35 35 36 36 37 37 38 39 39 40 40 41 41 42 41 43 42 44 43 44 44 45 46 47 46 47 48 49 50 50 50	NYMOUS User B	UE_A sends ANONYMC SUBSCRIBE for "User E presence" event with ex	SUBSCRIBE								_		33
35 36 36 37 37 38 39 39 40 40 41 41 42 200 OK 43 43 44 44 45 46 47 47 48 49 50 50	e SUBSCRIBE	IMS_A forwards the SU	SUBSCRIBE						>				34
36 37 37 38 38 39 39 200 OK 40 6 41 41 42 200 OK 43 44 44 44 45 6 46 47 47 48 49 50 50 50	the SUBSCRIBE	IBCF_A forwards the SL	SUBSCRIBE				•						35
37 37 38 38 39 39 40 40 41 200 OK 41 1MS_B AS (PS) 42 200 OK 43 200 OK 44 1MS_B AS respondents the response to IBCF_ 200 OK IBCF_B forwards the response to IBCF_ 200 OK IBCF_A forwards the response to IBCF_ 200 OK IBCF_B forwards the response to IMS_A 42 200 OK IBCF_B forwards the response to IBCF_ 200 OK IBCF_B forwards the response to IMS_A 44 45 IBCF_B forwards the IBCF_A 46 MOTIFY IBCF_A forwards the IBCF_A 47 IBCF_A forwards the IBCF_A 48 49 50 50 IBCF_B forwards the IBCF_B 200 OK IBCF_A forwards the IBCF_B 200 OK IBCF_A forwards the IBCF_B 200 OK IBCF_B forwards the	the SUBSCRIBE	IBCF_B forwards the SL	SUBSCRIBE			→							36
38 39 40 40 41 41 41 42 42 200 OK 43 43 44 44 45 46 46 47 48 49 50 50		IMS_B forwards the SU	SUBSCRIBE		→								37
39 40 40 200 OK IMS_B forwards the response to IBCF_2 201 OK IBCF_B forwards the response to IBCF_2 200 OK 41 41 200 OK IBCF_A forwards the response to IBCF_2 42 200 OK IMS_A forwards the response to UE_A 43 44 200 OK IMS_B AS sends N 44 10 10 10 45 10 10 10 46 10 10 10 47 10 10 10 48 200 OK IMS_A forwards the IBCF_A forwards the IBCF_A forwards the IBCF_A 49 50 10 10 50 10 10 10		IMS_B AS responds with	200 OK			←							38
40 200 OK IBCF_B forwards the response to IBCF_2 41 200 OK IBCF_A forwards the response to IMS_A 42 200 OK IMS_A forwards the response to UE_A 43 44 200 OK IMS_B AS sends N 44 45 IBCF_B NOTIFY IBCF_B forwards the response to UE_A 46 MOTIFY IBCF_A forwards the IBCF_A IMS_A forwards the IBCF_A 47 48 200 OK IMS_A forwards the IBCF_A 49 50 50 IBCF_B forwards the IBCF_A 50 200 OK IBCF_B forwards the IBCF_A 50 50 IBCF_B forwards the IBCF_B f		IMS_B forwards the 200	200 OK				<u> </u>						39
41 200 OK IBCF_A forwards the response to IIMS_A 42 200 OK IMS_A forwards the response to UE_A 43 200 OK IMS_B AS sends N 44 IBCF_B IBCF_B forwards A 45 IBCF_A forwards M IBCF_A 46 IBCF_A forwards N IBCF_A forwards A 47 IBCF_A forwards A IBCF_A forwards A 48 IBCF_A IMS_A forwards A 49 200 OK IBCF_A forwards A 50 IBCF_B forwards A IBCF_B forwards A	the 200 OK	IBCF_B forwards the 20	200 OK				-	¢					40
42 200 OK IMS_A forwards the response to UE_A 43 44 NOTIFY IMS_B AS sends N 44 IBCF_B NOTIFY IBCF_A forwards the UE_A 45 IMS_A forwards the UE_A NOTIFY IBCF_A forwards the UE_A 46 IMS_A forwards the UE_A IMS_A forwards the UE_A 47 IMS_A forwards the UE_A IMS_A forwards the UE_A 48 IMS_A forwards the UE_A IMS_A forwards the UE_A 50 IMS_A forwards the UE_A 200 OK IBCF_A 200 OK IBCF_A 200 OK IBCF_A 200 OK IBCF_A forwards the UE_A 200 OK IBCF_A 200 OK IBCF_B forwards the UE_A 200 OK IBCF_B forwards the UE_A 50 IMS_A forwards the UE_A 200 OK IBCF_B forwards the UE_A	the 200 OK	IBCF_A forwards the 20	200 OK						←				41
43 44 44 44 45 46 46 47 48 49 50 50	ne 200 OK	IMS_A forwards the 200	200 OK								 ÷		42
44 A4 45 A5 46 A6 47 A7 48 A7 49 A1 50 A1	NOTIFY to	IMS_B AS sends NOTIF	NOTIFY				<u> </u>						43
45 IBCF_A forwards N 46 IMS_A 46 IMS_A forwards the UE_A 47 IMS_A forwards the UE_A 48 IMS_A forwards the UE_A 49 IMS_A forwards the UE_A 50 IMS_A forwards the UE_A 200 OK IMS_A forwards the UE_A 200 OK IMS_A forwards the UE_A 200 OK IBCF_A 200 OK IBCF_B 50 IBCF_B forwards the UE_B 200 OK IBCF_B forwards the UE_B 50 IBCF_B 50<	NOTIFY to	IBCF_B forwards NOTIF	NOTIFY				-						44
46 IMS_A forwards the UE_A 47 IMS_A forwards the UE_A 48 IMS_A forwards the UE_A 49 IMS_A forwards the UE_A 50 IMS_A forwards the UE_A 200 OK IMS_A forwards the UE_A 200 OK IMS_A forwards the UE_A 200 OK IBCF_A 200 OK IBCF_B 200 OK IBCF_B forwards the UE_A	NOTIFY to	IBCF_A forwards NOTIF	NOTIFY						~				45
47 200 OK UE_A responds with IMS_A 48 200 OK IIMS_A forwards the IBCF_A 49 200 OK IBCF_A forwards the IBCF_B 50 200 OK IBCF_B forwards the IBCF_B forward	ne NOTIFY to	IMS_A forwards the NO	NOTIFY								 ÷		46
48 200 OK IMS_A forwards the IBCF_A 49 200 OK IBCF_A forwards the IBCF_B 50 200 OK IBCF_B forwards the IBCF_B forward	ith a 200 OK to	UE_A responds with a 2	200 OK							>			47
49 200 OK IBCF_A forwards the image of t	ne 200 OK to	IMS_A forwards the 200	200 OK										48
50 200 OK IBCF_B forwards the response to IMS_B	the 200 OK to	IBCF_A forwards the 20	200 OK										49
		IBCF_B forwards the 20	200 OK		_								50
send a NOTIFY to the change to the v	riggers the AS to UE_B indicating watcher	response to IMS_B AS SUBSCRIPTION trigger send a NOTIFY to UE_E the change to the watch information subscriber			1								51
52 NOTIFY IMS_B AS sends N IMS_B to indicate U	NOTIFY to UE_B the	IMS_B AS sends NOTIF IMS_B to indicate UE_B change to the watcher ir	NOTIFY			←							52

Step					Direc	tion					Message	Comment
	U s	U E	A S	I M	l B	l B	I M	A S	U E	U s		
	e	Ă	A	S	С	С	S	B	В	e		
	r A			Α	F A	F B	В			r B		
53										Ī	NOTIFY	IMS_B forwards the NOTIFY to IBCF_B
54					←						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
55				←	_						NOTIFY	IBCF_A forwards the NOTIFY to IMS_A
56							_		\rightarrow		NOTIFY	IMS_A forwards the NOTIFY to UE_B
57				←							200 OK	UE_B responds with a 200 OK to IMS_A
58					→						200 OK	IMS_A forwards the 200 OK response to IBCF_A
59						→					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
60							\rightarrow					IBCF_B forwards the 200 OK response to IMS_B
61								\rightarrow			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
62												User B receives an authorization request from User A to see its own
												presence and capability information
63												User B authorizes user A to be informed of its own presence and
0.4											NOTION	capability information
64						←					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
65					←						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
66				←	_						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67		←		_							NOTIFY	IMS_A forwards the NOTIFY to UE_A
68				→							200 OK	UE_A responds with a 200 OK to IMS_A
69					>						200 OK	IMS_A forwards the 200 OK response to IBCF_A
70						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
71								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
72												User A is informed of user B presence and capability information
73							(NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B that
74											NOTIFY	subscription has been authorized IMS_B forwards the NOTIFY to
75											NOTIFY	IBCF_B IBCF_B forwards the NOTIFY to
76											NOTIFY	IBCF_A IBCF_A forwards the NOTIFY to
77											NOTIFY	IMS_A IMS_A forwards the NOTIFY to
78											200 OK	UE_B UE_B responds with a 200 OK to
79											200 OK	IMS_A IMS_A forwards the 200 OK
					≯							response to IBCF_A
80						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B

ETSI

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
81							\rightarrow				200 OK	IBCF_B forwards the 200 OK response to IMS_B
82								→			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
83												User A sees user B presence and capability information

4.4.2.3 Watcher subscription to resource list

4.4.2.3.1 Description

UE_B is configured to receive notifications with watcher information. UE_B publishes its presence information. User B has authorized User A to see its presence information. User A is authorized to use resource lists which are considered to be XDMS lists of contacts provisioned in the user client and AS. UE_A subscribes to presence information state changes of a list of users containing UE_B. This test requires the use of application server in IMS_B, having the role of Presence Server (PS), and the use of application server in IMS_A, having the role of Resource List Server (RLS). The call flow path and node configuration for this use case corresponds to CF_INT_AS in case of interworking and CF_ROAM_AS (OPTIONAL) in case of roaming.

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS	CF_ROAM_AS (OPTIONAL)
1	User B publishes presence and capability information	Step 1	Step 1
2	User B is informed of its presence status update	Step 6	Step 12
3	User A subscribes to resource list previously stored in the User A client as XDMS list of contacts	Step 7	Step 13
	RLS performs authorization checks to ensure that User A is authorized to use resource lists	Step 10	Step 16
	RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI	Step 17	Step 23
	PS performs authorization checks on the originator to ensure it is allowed to watch the presentity	Step 23	Step 29
	RLS notifies with presence and capability information for all the presentities represented by the resource list SIP URI	Step 37	Step 43
8	User A sees user B presence and capability information	Step 42	Step 48

4.4.2.3.2 UC_RCS_3_I: SIP message flow for watcher subscription to resource list with CF_INT_AS

Step					Directi	on				-	Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	U E	U s		
	е	Ā	Ă	S	С	С	S	В	В	е		
	r A			Α	F A	F B	В			r B		
1												User B publishes presence and capability information
2											PUBLISH	UE_B sends PUBLISH with
							←					information for all commonly supported presence and capability
												elements
3								>			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←	_			200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									→		200 OK	IMS_B forwards the 200 OK response to UE_B
6												User B is informed of its presence status update
7												User A subscribes to resource list
												previously stored in the User A client as XDMS list of contacts
8											SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "presence" event
			_	→								with expiry time of 0 to IMS_A
												indicating support to "eventlist" to a resource list SIP URI
9			/								SUBSCRIBE	IMS_A forwards the SUBSCRIBE
10												to IMS_A AS (RLS)
10												RLS performs authorization checks to ensure that User A is authorized
											000.01/	to use resource lists
11				→							200 OK	IMS_A AS responds with a 200 OK to IMS_A
12		←		_							200 OK	IMS_A forwards the 200 OK response to UE_A
13				.							NOTIFY	IMS_A AS sends NOTIFY to
14											NOTIFY	IMS_A IMS_A forwards the NOTIFY to
14		<										UE_A
15				→							200 OK	UE_A responds with a 200 OK to IMS_A
16			←	_							200 OK	IMS_A forwards the 200 OK response to IMS_A AS
17												RLS resolves watcher resource's address and subscribes for
												presence event notification for all the presentities represented by the
10												resource list SIP URI
18				→							SUBSCRIBE	IMS_A AS (RLS) sends SUBSCRIBE for "presence" event to IMS_A
19					*						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
20						*					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
21							*				SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
22								_			SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
								1				to IMS_B AS (PS)

Step					Dire	ction					Message	Comment
0.04	U	U	Α				I	Α	U	U	measuge	
	S	E	S	м	В	В	м	S	E	S		
	е	Α	Α	S	С	С	S	В	В	е		
	r			Α	F	F	В			r		
22	A				<u> </u>	В				В		DC nonformed outborization shools
23												PS performs authorization checks on the originator to ensure it is
												allowed to watch the presentity
24											200 OK	IMS_B AS (PS) responds with a
							Ć					200 OK to IMS_B
25						(200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
26					←						200 OK	IBCF_B forwards the 200 OK
27											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
21				←	_						200 OK	response to IMS_A
28											200 OK	IMS_A forwards the 200 OK
			<									response to IMS_A AS (RLS)
29											NOTIFY	IMS_B AS sends a NOTIFY to
						←		_				IBCF_B with the presence and
												capability information of UE_B
30					←						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
31												IBCF_A forwards the NOTIFY to
01				←								IMS A
32			/								NOTIFY	IMS_A forwards the NOTIFY to
												IMS_A AS (RLS)
33				\rightarrow							200 OK	IMS_A AS responds with a 200 OK
34											200 OK	to IMS_A IMS_A forwards the 200 OK
34					\rightarrow						200 OK	response to IBCF_A
35											200 OK	IBCF_A forwards the 200 OK
						\rightarrow						response to IBCF_B
36								_			200 OK	IBCF_B forwards the 200 OK
		_						1				response to IMS_B AS
37												RLS notifies with presence and
												capability information for all the presentities represented by the
												resource list SIP URI
38											NOTIFY	IMS_A AS sends NOTIFY to
				→								IMS_A
39		(NOTIFY	IMS_A forwards the NOTIFY to
		Ì										UE_A
40				\rightarrow							200 OK	UE_A responds with a 200 OK to
41											200 OK	IMS_A IMS_A forwards the 200 OK
- '			←									response to IMS_A AS
42												User A sees user B presence and
												capability information

4.4.2.3.3 UC_RCS_3_R: SIP message flow for watcher subscription to resource list with CF_ROAM_AS (OPTIONAL)

Step					Direct	ion					Message	Comment
	U	U	A	I		Ι	I	A	U	U		
	s e	E A	S A	M S	B C	B C	M S	S B	E B	s e		
	r			Ă	F	F	В	_		r		
4	Α				Α	В				В		
1												User B publishes presence and capability information
2											PUBLISH	UE_B sends PUBLISH with
												information for all commonly
												supported presence and capability elements
3					<u>`</u>						PUBLISH	IMS_A forwards the PUBLISH to
4					1						PUBLISH	IBCF_A IBCF_A forwards the PUBLISH to
4						\rightarrow					PUBLISH	IBCF_A lotwards the POBLISH to
5											PUBLISH	IBCF_B forwards the PUBLISH to
							→					IMS_B
6								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
7							←	_			200 OK	IMS_B AS responds with a 200 OK to IMS_B
8						←					200 OK	IMS_B forwards the 200 OK
9											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
3					←						200 01	response to IBCF_A
10				←	_						200 OK	IBCF_A forwards the 200 OK response to IMS_A
11											200 OK	IMS_A forwards the 200 OK
12									-			response to UE_B User B is informed of its presence
12												status update
13												User A subscribes to resource list
												previously stored in the User A client as XDMS list of contacts
14											SUBSCRIBE	UE_A sends ANONYMOUS
												SUBSCRIBE for "presence" event with expiry time of 0 to IMS_A
				1								indicating support to "eventlist" to a
												resource list SIP URI
15			←								SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
16												RLS performs authorization checks
												to ensure that User A is authorized to use resource lists
17				→							200 OK	IMS_A AS responds with a 200 OK to IMS_A
18		<u> </u>									200 OK	IMS_A forwards the 200 OK
19		Ĩ									NOTIFY	response to UE_A IMS_A AS sends NOTIFY to
19				\rightarrow								IMS_A
20		←		_							NOTIFY	IMS_A forwards the NOTIFY to UE_A
21				→							200 OK	UE_A responds with a 200 OK to
22											200 OK	IMS_A IMS_A forwards the 200 OK
22												response to IMS_A AS
23												RLS resolves watcher resource's address and subscribes for
												presence event notification for all
												the presentities represented by the
												resource list SIP URI

Step					Direct	tion					Message	Comment
	U	U	Α	I	Ι	-	I	Α	U	υ		
	S	E	S	M	B	В	M	S	E	S		
	e r	Α	Α	S A	C F	C F	S B	В	В	e r		
	A			~	A	В	Б			B		
24			1						1		SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event
												to IMS_A
25					-						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
					`							to IBCF_A
26						\rightarrow					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
27											SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
21							\rightarrow				SOBSCIUDE	to IMS_B
28											SUBSCRIBE	IMS_B forwards the SUBSCRIBE
								-				to IMS_B AS (PS)
29												PS performs authorization checks
												on the originator to ensure it is
											000.01/	allowed to watch the presentity
30							←				200 OK	IMS_B AS (PS) responds with a 200 OK to IMS_B
31											200 OK	IMS_B forwards the 200 OK
01						←					200 010	response to IBCF_B
32					,						200 OK	IBCF_B forwards the 200 OK
												response to IBCF_A
33				<u> </u>	_						200 OK	IBCF_A forwards the 200 OK
												response to IMS_A
34			←								200 OK	IMS_A forwards the 200 OK
35											NOTIFY	response to IMS_A AS (RLS) IMS_B AS sends a NOTIFY to
55						<u> </u>						IBCF_B with the presence and
						Ì						capability information of UE_B
36					,						NOTIFY	IBCF_B forwards the NOTIFY to
												IBCF_A
37				~	_							IBCF_A forwards the NOTIFY to
20											NOTIFY	IMS_A IMS_A forwards the NOTIFY to
38			←								NOTIFY	IMS_A AS (RLS)
39											200 OK	IMS_A AS responds with a 200 OK
				\rightarrow								to IMS_A
40			Í		<u>`</u>	Ì			Í		200 OK	IMS_A forwards the 200 OK
												response to IBCF_A
41						\rightarrow					200 OK	IBCF_A forwards the 200 OK
42											200 OK	response to IBCF_B IBCF_B forwards the 200 OK
42								_	\rightarrow		200 OK	response to IMS_B AS
43												RLS notifies with presence and
												capability information for all the
												presentities represented by the
											NOTEX	resource list SIP URI
44				\rightarrow							NOTIFY	IMS_A AS sends NOTIFY to
45											NOTIFY	IMS_A IMS_A forwards the NOTIFY to
43		←										UE_A
46											200 OK	UE_A responds with a 200 OK to
				→								IMS_A
47			(200 OK	IMS_A forwards the 200 OK
			`									response to IMS_A AS
48												User A sees user B presence and
												capability information

4.4.3 IM/chat service

4.4.3.1 General description

IM/chat service session assumes the possibility for users to receive the following types of services:

- 1-to-1 chat (including support of notifications and file transfer within 1-to-1 chat);
- 1-to-many chat.

For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to IM/chat service.

4.4.3.2 1-to-1 chat standard procedure

Following there are the expected common call flow sequences for the standard procedures of 1-to-1 chat service between RCS-e users.

4.4.3.2.1 UC_RCS_4_I: SIP message flow for 1-to-1 chat standard procedure with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends him an initial message	Step 1
2	User B is informed of incoming message	Step 20
3	User A is informed that initial message was delivered to user B	Step 39
4	User B reads the initial message from user A and opens the 1-to-1 chat	Step 49
5	Users perform chatting	Step 68
6A	User A closes the 1-to-1 chat	Step 69A
6B	User B closes the 1-to-1 chat	Step 69B
7A	User A is informed that 1-to-1 chat with user B is closed	Step 88A
7B	User B is informed that 1-to-1 chat with user A is closed	Step 88B

Step					Direc	tion					Message	Comment
	U s e r A	UEA	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	UserB		
1		→										User A selects User B in the phone address book and sends him an initial message
2											INVITE	UE_A sends INVITE to IMS_A with user A initial message in the Subject header, CPIM/IMND headers and the first SDP offer indicating all specific data for MSRP connection set up
3		←									100 Trying	IMS_A responds with a 100 Trying provisional response
4			(INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			←								100 Trying	IMS_A responds with a 100 Trying provisional response

A I S/ M A A A	Direction I I B B C C F F A B 		S/	UU ES Be B	MessageINVITE100 TryingINVITE100 TryingINVITE100 TryingINVITE100 TryingINVITE100 TryingINVITE100 TryingINVITE100 Trying	Comment IMS_A forwards INVITE to IBCF_A IBCF_A responds with a 100 Trying provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a 100 Trying
I S M A	C C F F	S	I M	B e r	100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IBCF_A responds with a 100 Trying provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
M A	FF		M	r	100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IBCF_A responds with a 100 Trying provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
					100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IBCF_A responds with a 100 Trying provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			*		100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IBCF_A responds with a 100 Trying provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			* - *		INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	provisional response IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			*		100 Trying INVITE 100 Trying INVITE 100 Trying INVITE INVITE	IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			* - - 		100 Trying INVITE 100 Trying INVITE 100 Trying INVITE INVITE	IBCF_B responds with a 100 Trying provisional response IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			* - - *		100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IBCF_B forwards INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			* - *		100 Trying INVITE 100 Trying INVITE 100 Trying INVITE	IMS_B responds with a 100 Trying provisional responseIMS_B forwards INVITE to AS/IM_BAS/IM_B responds with a 100 Trying provisional responseAS/IM_B returns, possibly modified, INVITE to IMS_BIMS_B responds with a 100 Trying provisional responseIMS_B forwards INVITE to UE_BUE_B optionally responds with a
			* - * *		INVITE 100 Trying INVITE 100 Trying INVITE	provisional response IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			* - *		100 Trying INVITE 100 Trying INVITE	AS/IM_B responds with a 100 Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
		<	- - - 		INVITE 100 Trying INVITE	Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			- * 		100 Trying INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			→ → →		100 Trying INVITE	INVITE to IMS_B IMS_B responds with a 100 Trying provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
			→ → ↓		INVITE	provisional response IMS_B forwards INVITE to UE_B UE_B optionally responds with a
		<				IMS_B forwards INVITE to UE_B UE_B optionally responds with a
		« 				UE_B optionally responds with a
						100 Trying provisional response
						User B is informed of incoming message
					180 Ringing	UE_B responds to initial INVITE
		←				with 180 Ringing to indicate that invitation to a 1-to-1 chat session
						has reached the invited user
			→		180 Ringing	IMS_B forwards 180 Ringing
					180 Ringing	response to AS/IM_B AS/IM_B returns, possibly modified,
		←			100 Kinging	180 Ringing response to IMS_B
	←				180 Ringing	IMS_B forwards 180 Ringing
					180 Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
	<					response to IBCF_A
<	-				180 Ringing	IBCF_A forwards 180 Ringing
					180 Rinaina	response to IMS_A IMS_A forwards 180 Ringing
<						response to AS/IM_A
—					180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
					180 Ringing	IMS_A forwards 180 Ringing
						response to UE_A
		←			MESSAGE	UE_B sends MESSAGE to IMS_B with delivery notification of initial message from user A
					MESSAGE	IMS_B forwards MESSAGE to
			7			AS/IM_B
		←	-		MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
					MESSAGE	IMS_B forwards MESSAGE to IBCF_B
	<u> </u>				MESSAGE	IBCF_B forwards MESSAGE to
					MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
					MESSAGE	IMS_A IMS_A forwards MESSAGE to
						AS/IM_A
					MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
					MESSAGE	IMS_A forwards MESSAGE to UE_A
						Image: state of the second

Step					Directi	on					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	A	3/	S	C	Č	S	3/ 	B	e		
	r		Μ	Α	F	F	в	М		r		
39	A		A		<u>A</u>	B		B		B		User A is informed that initial
40											000.01/	message was delivered to user B
40				\rightarrow							200 OK	UE_A responds MESSAGE with 200 OK response
41			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
42				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
43					>						200 OK	IMS_A forwards 200 OK response to IBCF_A
44						*					200 OK	IBCF_A forwards 200 OK response to IBCF_B
45							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
46											200 OK	IMS_B forwards 200 OK response to AS/IM_B
47							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
48									→		200 OK	IMS_B forwards 200 OK response to UE_B
49												User B reads the initial message
												from user A and opens the 1-to-1 chat
50											200 OK	UE_B responds INVITE with 200
							←					OK response with SDP to indicate that the session has been accepted
												and inform A-side with specific data for MSRP connection set up
51											200 OK	IMS_B forwards 200 OK response to AS/IM_B
52							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
53						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
54					¢	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
55				<	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
56			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
57				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
58		←		_							200 OK	IMS_A forwards 200 OK response to UE_A
59				→							АСК	UE_A acknowledges the receipt of 200 OK for INVITE
60			←	_							АСК	IMS_A forwards ACK to AS/IM_A
61				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
62					×						ACK	IMS_A forwards ACK to IBCF_A
63						*					ACK	IBCF_A forwards ACK to IBCF_B
64							→				ACK	IBCF_B forwards ACK to IMS_B
65								*			ACK	IMS_B forwards ACK to AS/IM_B
66							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
67									→		ACK	IMS_B forwards ACK to UE_B
68	←									→		Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP and use 5.4.1 test description)
69A		→										User A closes the 1-to-1 chat

Step					Direct	ion					Message	Comment
	U	U	A	1		Ι	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	~	м	A	F	F	B	M	Ъ	r		
	A		A		A	В	_	В		В		
70A				→							BYE	UE_A releases the 1-to-1 chat
74.0				1								session with BYE
71A			<								BYE BYE	IMS_A forwards BYE to AS/IM_A
72A				\rightarrow							BIE	AS/IM_A returns, possibly modified, BYE to IMS_A
73A					→						BYE	IMS_A forwards BYE to IBCF_A
74A						→					BYE	IBCF_A forwards BYE to IBCF_B
75A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
76A								→			BYE	IMS_B forwards BYE to AS/IM_B
77A							←				BYE	AS/IM_B returns, possibly modified,
78A											BYE	BYE to IMS_B IMS_B forwards BYE to UE_B
79A							/		7		200 OK	UE_B sends 200 OK for BYE
79A 80A											200 OK 200 OK	IMS_B forwards 200 OK for BTE
007								→			200 01	to AS/IM_B
81A							/				200 OK	AS/IM_B returns, possibly modified,
												200 OK response to IMS_B
82A						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
83A					←	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
84A				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
85A											200 OK	IMS_A forwards 200 OK response
964			<								200 OK	to AS/IM_A
86A				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
87A		←		_							200 OK	IMS_A forwards 200 OK response to UE_A
88A	<u> </u>											User A is informed that 1-to-1 chat
69B									-			with user B is closed User B close the 1-to-1 chat
70B											BYE	UE_B releases the 1-to-1 chat
							(session with BYE
71B								→			BYE	IMS_B forwards BYE to AS/IM_B
72B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
73B						<u> </u>					BYE	IMS_B forwards BYE to IBCF_B
74B					<u> </u>	_					BYE	IBCF_B forwards BYE to IBCF_A
75B											BYE	IBCF_A forwards BYE to IMS_A
76B			←								BYE	IMS_A forwards BYE to AS/IM_A
77B			Ì								BYE	AS/IM_A returns, possibly modified,
				7								BYE to IMS_A
78B		←									BYE	IMS_A forwards BYE to UE_A
79B				\rightarrow							200 OK	UE_A sends 200 OK for BYE
80B			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
81B				→							200 OK	AS/IM_A returns, possibly modified,
82B					→						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
83B						→					200 OK	to IBCF_A IBCF_A forwards 200 OK response
84B											200 OK	to IBCF_B IBCF_B forwards 200 OK response
0.55											000.01/	to IMS_B
85B								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B

Step						Dire	ction					Message	Comment
	•	J S e r	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
86B		<u> </u>						←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
87B										\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
88B					ĺ					-	\rightarrow		User B is informed that that 1-to-1 chat with user A is closed

4.4.3.2.2 UC_RCS_4_R: SIP message flow for 1-to-1 chat standard procedure with CF_ROAM_AS (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B selects User A in the phone address book and sends him an initial message	Step 1
2	User A is informed of incoming message	Step 26
3	User B is informed that initial message was delivered to user A	Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	Step 64
5	Users perform chatting	Step 89
6A	User B closes the 1-to-1 chat	Step 90A
6B	User A closes the 1-to-1 chat	Step 90B
7A	User B is informed that that 1-to-1 chat with user A is closed	Step 115A
7B	User A is informed that that 1-to-1 chat with user B is closed	Step 115B

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U	-	
	S	Е	S/	М	В	В	М	S/	E	S		
	е	Α	I	S	С	C	S	I	В	е		
	r		M	Α	F	F	В	M		r		
1	A		A		<u> </u>	В		В		В		Llear Declaste Llear A in the phone
I									/			User B selects User A in the phone address book and sends him an
												initial message
2											INVITE	UE_B sends INVITE to IMS_A with
_												user B initial message in the Subject
				←								header, CPIM/IMND headers and the
												first SDP offer indicating all specific
												data for MSRP connection set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying
4												provisional response
4					\rightarrow							IMS_A forwards INVITE to IBCF_A
5				←							100 Trying	IBCF_A responds with a 100 Trying
6											INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
-						~						
7					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9							-				100 Trying	IMS_B responds with a 100 Trying
Ũ											100	provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11											100 Trying	AS/IM_B responds with a 100 Trying
											, ,	provisional response
12							<u> </u>				INVITE	AS/IM_B returns, possibly modified,
							$\left[\right]$					INVITE to IMS_B

Step					Directio	on					Message	Comment
	U	U	A	1			I	A	U	U	-	
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	~	M	Ă	F	F	в	м		r		
4.0	Α		Α		Α	В		В		В		
13								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
14						←	_				INVITE	IMS_B forwards INVITE to IBCF_B
15							→				100 Trying	IBCF_B responds with a 100 Trying
16					<u> </u>						INVITE	provisional response IBCF_B forwards INVITE to IBCF_A
17					`						100 Trying	IBCF_A responds with a 100 Trying
18				,							INVITE	provisional response IBCF_A forwards INVITE to IMS_A
10											100 Trying	IMS_A responds with a 100 Trying
					•						, ,	provisional response
20			←									IMS_A forwards INVITE to AS/IM_A
21				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
22				_							INVITE	AS/IM_A returns, possibly modified,
23											100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
20			←								, ,	provisional response
24		←									INVITE	IMS_A forwards INVITE to UE_A
25				\rightarrow							100 Trying	UE_A optionally responds with a 100 Trying provisional response
26	<u> </u>											User A is informed of incoming
27											180 Ringing	message UE_A responds to initial INVITE with
21												180 Ringing to indicate that invitation
												to a 1-to-1 chat session has reached
28											180 Ringing	the invited user IMS_A forwards 180 Ringing
			(response to AS/IM_A
29				\rightarrow							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
30											180 Ringing	IMS_A forwards 180 Ringing
31											180 Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
31						*					160 Kinging	response to IBCF_B
32							→				180 Ringing	IBCF_B forwards 180 Ringing
33											180 Ringing	response to IMS_B IMS_B forwards 180 Ringing
								→				response to AS/IM_B
34							←				180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
35						,					180 Ringing	IMS_B forwards 180 Ringing
											400 D: .	response to IBCF_B
36					←	-					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
37				<u> </u>							180 Ringing	IBCF_A forwards 180 Ringing
38				Ì							180 Ringing	response to IMS_A IMS_A forwards 180 Ringing
									\rightarrow			response to UE_B
39											MESSAGE	UE_A sends MESSAGE to IMS_A
				_								with delivery notification of initial message from user B
40			(MESSAGE	IMS_A forwards MESSAGE to
41			ľ								MESSAGE	AS/IM_A AS/IM_A returns, possibly modified,
				\rightarrow								MESSAGE to IMS_A
42					*						MESSAGE	IMS_A forwards MESSAGE to
43					L,						MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
						7					_	IBCF_B

Step					Direct	ion					Message	Comment
	U	U	A	I		Ι	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	EB	s e		
	r	2.	M	Ă	F	F	В	M		r		
4.4	Α	-	Α		Α	В		В		В	145004.05	
44							\rightarrow				MESSAGE	IBCF_B forwards MESSAGE to IMS_B
45											MESSAGE	IMS_B forwards MESSAGE to
10											45004.05	AS/IM_B
46							←				MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
47						,					MESSAGE	IMS_B forwards MESSAGE to
40												IBCF_B
48					←	_					MESSAGE	IBCF_B forwards MESSAGE to IBCF_A
49				,							MESSAGE	IBCF_A forwards MESSAGE to
50											145004.05	IMS_A
50									\rightarrow		MESSAGE	IMS_A forwards MESSAGE to UE_B
51												User B is informed that initial
50										1	000.01/	message was delivered to user A
52				<							200 OK	UE_B responds MESSAGE with 200 OK response
53					_						200 OK	IMS_A forwards 200 OK response to
5.4					1						000.01/	IBCF_A
54						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
55							``				200 OK	IBCF_B forwards 200 OK response
50							1				000.01/	to IMS_B
56								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
57							<u> </u>				200 OK	AS/IM_B returns, possibly modified,
50											000.01/	200 OK response to IMS_B
58						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
59					<i>,</i>						200 OK	IBCF_B forwards 200 OK response
<u> </u>											200 OK	to IBCF_A
60				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
61			<i>(</i>								200 OK	IMS_A forwards 200 OK response to
											200.01	AS/IM_A
62				\rightarrow							200 OK	AS/IM_A returns, possibly modified, ACK to IMS_A
63		(200 OK	IMS_A forwards ACK to UE_A
64												User A reads the initial message
-07		→										from user B and opens the 1-to-1
											000.01/	chat
65											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for
66											200 OK	MSRP connection set up IMS_A forwards 200 OK response to
00			←								200 01	AS/IM_A
67				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
68											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
00					→						200 01	IBCF_A
69						→					200 OK	IBCF_A forwards 200 OK response
70											200 OK	to IBCF_B IBCF_B forwards 200 OK response
10							\rightarrow					to IMS_B
71								\rightarrow			200 OK	IMS_B forwards 200 OK response to
	I	I	ļ	I	I	l	I	I	ļ	1		AS/IM_B

Step					Direc	ction					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U	Ĭ	
	S	E	S/	M	B	B	M	S/	E	S		
	e	Α	M	S A	C F	C F	S B	I M	В	e		
	r A		A	A	Г А	В	В	B		r B		
72										Ť	200 OK	AS/IM_B returns, possibly modified,
												200 OK response to IMS_B
73						←					200 OK	IMS_B forwards 200 OK response to
74											200 OK	IBCF_B IBCF_B forwards 200 OK response
74					< <u>←</u>						200 010	to IBCF_A
75				<u> </u>							200 OK	IBCF_A forwards 200 OK response
70											200 OK	to IMS_A
76									→		200 OK	IMS_A forwards 200 OK response to UE_B
77				,							ACK	UE_B acknowledges the receipt of
												200 OK for INVITE
78					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
79						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
80							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
81								→			ACK	IMS_B forwards ACK to AS/IM_B
82							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
83						←					ACK	IMS_B forwards ACK to IBCF_B
84					←						ACK	IBCF_B forwards ACK to IBCF_A
85				←							ACK	IBCF_A forwards ACK to IMS_A
86			←	_							ACK	IMS_A forwards ACK to AS/IM_A
87											ACK	AS/IM_A returns, possibly modified,
00											ACK	ACK to IMS_A IMS_A forwards ACK to UE_A
88		←									ACK	
89												Users perform chatting (see clause
										7		5.3.1 Chat 1 to 1 via MSRP and use 5.4.1 test description)
90A									-			User B closes the 1-to-1 chat
91A											BYE	UE_B releases the 1-to-1 chat
0177									_		0.2	session with BYE
92A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
93A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
94A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
95A								>			BYE	IMS_B forwards BYE to AS/IM_B
96A							←	_			BYE	AS/IM_B returns, possibly modified,
97A						/					BYE	BYE to IMS_B IMS_B forwards BYE to IBCF_B
97A 98A					,						BYE	IBCF_B forwards BYE to IBCF_A
99A				/							BYE	IBCF_A forwards BYE to IMS_A
100A			/	`							BYE	IMS_A forwards BYE to AS/IM_A
100/X											BYE	AS/IM_A returns, possibly modified,
101/1				\rightarrow							0.2	BYE to IMS_A
102A		←									BYE	IMS_A forwards BYE to UE_A
103A				\rightarrow							200 OK	UE_A sends 200 OK for BYE
104A			←								200 OK	IMS_A forwards 200 OK response to
1054			ľ								200.0K	AS/IM_A AS/IM_A returns, possibly modified,
105A				\rightarrow							200 OK	200 OK response to IMS_A
106A											200 OK	IMS_A forwards 200 OK response to
					-							IBCF_A
107A						\rightarrow					200 OK	IBCF_A forwards 200 OK response
108A											200 OK	to IBCF_B IBCF_B forwards 200 OK response
TUOA							\rightarrow				200 UK	to IMS_B
109A											200 OK	IMS_B forwards 200 OK response to
								7				AS/IM_B

Step					Direct	ion					Message	Comment
_	U	U	Α	I	I	Ι	I	Α	U	U		
	S	E	S/	М	B	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	I M	В	e r		
	Å		A	^	A	В	5	В		B		
110A							<	_			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
111A						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
112A					<u> </u>	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
113A				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
114A									→		200 OK	IMS_A forwards 200 OK response to UE_B
115A										→		User B is informed that that 1-to-1
90B		_										chat with user A is closed User A closes the 1-to-1 chat
91B				→							BYE	UE_A releases the 1-to-1 chat session with BYE
92B			←								BYE	IMS_A forwards BYE to AS/IM_A
93B				→							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
94B					→						BYE	IMS_A forwards BYE to IBCF_A
95B						→					BYE	IBCF_A forwards BYE to IBCF_B
96B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
97B								→			BYE	IMS_B forwards BYE to AS/IM_B
98B							←	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
99B						←					BYE	IMS_B forwards BYE to IBCF_B
100B					←	_					BYE	IBCF_B forwards BYE to IBCF_A
101B				←	_						BYE	IBCF_A forwards BYE to IMS_A
102B					_			_	\rightarrow		BYE	IMS_A forwards BYE to UE_B
103B				←	_			_			200 OK	UE_B sends 200 OK for BYE
104B					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
105B						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
106B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
107B								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
108B							←	4			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
109B						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
110B					←	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
111B				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
112B			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
113B				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
114B		←		_							200 OK	IMS_A forwards 200 OK response to UE_A
115B	←	_										User A is informed that that 1-to-1 chat with user B is closed

4.4.3.3 File transfer within 1-to-1 chat

Following there are the expected common call flow sequences for IM/chat service when the incoming one-to-one IM session requests is not answered by the RCS client.

4.4.3.3.1 UC_RCS_5_I: SIP message flow for file transfer within 1-to-1 chat with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends	UC_RCS_4_I Step 1
	him an initial message	
2	User B is informed of incoming message	UC_RCS_4_I Step 20
3	User A is informed that initial message was delivered to user B	UC_RCS_4_I Step 39
4	User B reads the initial message from user A and opens the 1-	UC_RCS_4_I Step 49
	to-1 chat	
5	Users perform chatting	UC_RCS_4_I Step 68
6	User A initiates a file transfer to user B	Step 2
7	User B is informed of incoming file and accepts the transfer	Step 21
8	User A is informed that file transfer has been accepted by user	Step 31
	В	
9	File transfer starts	Step 41
10	File transfer completed (size checked)	Step 42
11	User B is informed that file transfer completed	Step 52
12	User A is informed that file transfer completed	Step 62
13	Users continue chatting	Step 63
14A	User A closes the 1-to-1 chat	UC_RCS_4_I Step 69A
14B	User B closes the 1-to-1 chat	UC_RCS_4_I Step 69B
15A	User A is informed that 1-to-1 chat with user B is closed	UC_RCS_4_I Step 88A
15B	User B is informed that 1-to-1 chat with user A is closed	UC_RCS_4_I Step 88B

Step					Direc	tion	Message	Comment				
	U	U	Α	I	I	I	I	Α	U	U		
	S	E	S/	М	В	В	М	S/	Е	S		
	е	Α	I	S	c	c	S		В	е		
	r		M	Α	F	F	В	M		r		
1	A		A		A	В		В		B		Follow UC_RCS_4_I (1-68)
2												User A initiates a file transfer to user
2		→										В
3											INVITE	UE_A sends INVITE to IMS_A to
				\rightarrow								establish a new session with the
												SDP offer indicating all specific data
4											100 Trying	for a new MSRP connection set up
4		←									TOO Trying	IMS_A responds with a 100 Trying provisional response
5			(INVITE	IMS_A forwards INVITE to AS/IM_A
6			Ì								100 Trying	AS/IM_A responds with a 100
Ŭ				\rightarrow							roo rrying	Trying provisional response
7											INVITE	AS/IM_A returns, possibly modified,
												INVITE to IMS_A
8			/								100 Trying	IMS_A responds with a 100 Trying
												provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
10				<u> </u>							100 Trying	IBCF_A responds with a 100 Trying
												provisional response
11						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
12					←						100 Trying	IBCF_B responds with a 100 Trying
					ſ							provisional response
13							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B

Step					Direc	tion					Message	Comment
	U	U	A	I	Ι	Ι	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	^	M	Ă	F	F	В	M	D	r		
	Α		Α		Α	В		В		В		
14						←					100 Trying	IMS_B responds with a 100 Trying
15								_			INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
16								1			100 Trying	AS/IM_B responds with a 100
							<u> </u>	_			roo riying	Trying provisional response
17							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
18								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
19								_	\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
20							(100 Trying	UE_B optionally responds with a
04												100 Trying provisional response
21									_	→		User B is informed of incoming file and accepts the transfer
22											200 OK	UE_B responds INVITE with 200
												OK response with SDP to indicate
							←					that the session has been accepted
												and inform A-side with specific data for a new MSRP connection set up
23								→			200 OK	IMS_B forwards 200 OK response
24							<u> </u>				200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
25							Ì				200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
						<						to IBCF_B
26					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
27				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
28			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
29				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
30		←									200 OK	IMS_A forwards 200 OK response
31												to UE_A User A is informed that file transfer
	<											has been accepted by user B
32				\rightarrow							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
33			←	_							ACK	IMS_A forwards ACK to AS/IM_A
34				\rightarrow							ACK	AS/IM_A returns, possibly modified,
35											ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
35						_					ACK	IBCF_A forwards ACK to IBCF_A
30							_				ACK	IBCF_B forwards ACK to IBCF_B
38							1	\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							-				ACK	AS/IM_B returns, possibly modified,
40									→		ACK	ACK to IMS_B IMS_B forwards ACK to UE_B
41									1			File transfer starts (see clause 5.3.3
42	K									\rightarrow		and use 5.4.1 test description) File transfer completed (size
												checked)
43				→							BYE	UE_A releases the file transfer session with BYE
44			←								BYE	IMS_A forwards BYE to AS/IM_A
45				→							BYE	AS/IM_A returns, possibly modified,
46					→						BYE	BYE to IMS_A IMS_A forwards BYE to IBCF_A
	I	I	I	I	.1	I	I	I	I	I	L	

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U	Ŭ	
	S	E	S/	M	B	B	M	S/	E	S		
	e	Α	M	S A	C F	C F	S B	M	В	e		
	Ă		A	~	A	В	В	B		r B		
47						→				· [BYE	IBCF_A forwards BYE to IBCF_B
48							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
49								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
50							(BYE	AS/IM_B returns, possibly modified,
							Ì					BYE to IMS_B
51									\rightarrow	_	BYE	IMS_B forwards BYE to UE_B
52									-	→		User B is informed that file transfer completed
53							←				200 OK	UE_B sends 200 OK for BYE
54								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
55							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
56						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
57					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
58				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
59			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
60				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
61		←									200 OK	IMS_A forwards 200 OK response to UE_A
62	←	_										User A is informed that file transfer completed
63	←	_								\rightarrow		Users continue chatting
64												Continue UC_RCS_4_I (69A-88B)

4.4.3.3.2 UC_RCS_5_R: SIP message flow for file transfer within 1-to-1 chat with CF_ROAM_AS (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User B selects User A in the phone address book and sends him an initial message	UC_RCS_4_R Step 1
2	User A is informed of incoming message	UC_RCS_4_R Step 26
3	User B is informed that initial message was delivered to user A	UC_RCS_4_R Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	UC_RCS_4_R Step 64
5	Users perform chatting	UC_RCS_4_R Step 89
6	User B initiates a file transfer to user A	Step 2
7	User A is informed of incoming file and accepts the transfer	Step 27
8	User B is informed that file transfer has been accepted by user B	Step 40
9	File transfer starts	Step 53
10	File transfer completed (size checked)	Step 54
11	User A is informed that file transfer completed	Step 67
12	User B is informed that file transfer completed	Step 80
13	Users continue chatting	Step 81
14A	User B closes the 1-to-1 chat	UC_RCS_4_R Step 90A
14B	User A closes the 1-to-1 chat	UC_RCS_4_R Step 90B
15A	User B is informed that that 1-to-1 chat with user A is closed	UC_RCS_4_R Step 115A
15B	User A is informed that that 1-to-1 chat with user B is closed	UC_RCS_4_R Step 115B

The expected call flow sequence is:

Step					Directio	n					Message	Comment
	U	U	A	I			I	A	U	U		
	s e	E A	S/	M S		B C	M S	S/	E B	s e		
	r		М	Ă	F	F	В	М		r		
4	A		A		<u>A</u>	B		В		В		
1 2												Follow UC_RCS_4_R (1-89) User B initiates a file transfer to user
2									K			A
3											INVITE	UE_B sends INVITE to IMS_A to
				←								establish a new session with the SDP offer indicating all specific data
												for a new MSRP connection set up
4									→		100 Trying	IMS_A responds with a 100 Trying
5					*						INVITE	provisional response IMS_A forwards INVITE to IBCF_A
6											100 Trying	IBCF_A responds with a 100 Trying
] .							provisional response
7 8					\rightarrow						INVITE 100 Trying	IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
o					←							provisional response
9						\mapsto					INVITE	IBCF_B forwards INVITE to IMS_B
10							-				100 Trying	IMS_B responds with a 100 Trying
11								*			INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
12											100 Trying	AS/IM_B responds with a 100 Trying
10											INVITE	provisional response
13							←	_				AS/IM_B returns, possibly modified, INVITE to IMS_B
14											100 Trying	IMS_B responds with a 100 Trying provisional response
15						←	•				INVITE	IMS_B forwards INVITE to IBCF_B
16						\rightarrow					100 Trying	IBCF_B responds with a 100 Trying provisional response
17					←						INVITE	IBCF_B forwards INVITE to IBCF_A
18					\rightarrow						100 Trying	IBCF_A responds with a 100 Trying provisional response
19				←	-						INVITE	IBCF_A forwards INVITE to IMS_A
20					•						100 Trying	IMS_A responds with a 100 Trying provisional response
21			←	_							INVITE	IMS_A forwards INVITE to AS/IM_A
22											100 Trying	AS/IM_A responds with a 100 Trying provisional response
23											INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24			←	-							100 Trying	IMS_A responds with a 100 Trying provisional response
25		←	_	_							INVITE	IMS_A forwards INVITE to UE_A
26				*							100 Trying	UE_A optionally responds with a 100
27				-								Trying provisional response User A is informed of incoming file
21	K											and accepts the transfer
28											200 OK	UE_A responds INVITE with 200 OK
			_	*								response with SDP to indicate that the session has been accepted and
												inform B-side with specific data for a
29											200 OK	new MSRP connection set up IMS_A forwards 200 OK response to
23			←	-							200 01	AS/IM_A
30				*							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
31											200 OK	IMS_A forwards 200 OK response to
					1							IBCF_A

Step	Direction										Message	Comment	
	U	U	A		- c	Ι		A	0	U			
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e			
	r	~	Ň	Ă	F	F	B	M		r			
	Α		Α		Α	В		В		В			
32						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B	
33							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B	
34								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B	
35							←				200 OK	AS/IM_B returns, possibly modified,	
36						←					200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to	
37					<u>(</u>						200 OK	IBCF_B IBCF_B forwards 200 OK response	
38											200 OK	to IBCF_A IBCF_A forwards 200 OK response	
39											200 OK	to IMS_A IMS_A forwards 200 OK response to	
40									\rightarrow			UE_B User B is informed that file transfer	
										\rightarrow		has been accepted by user B	
41				←				+			ACK	UE_B acknowledges the receipt of 200 OK for INVITE	
42					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A	
43						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B	
44							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B	
45								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B	
46							←	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B	
47						←					ACK	IMS_B forwards ACK to IBCF_B	
48					←	_					ACK	IBCF_B forwards ACK to IBCF_A	
49				←							ACK	IBCF_A forwards ACK to IMS_A	
50			←	_							ACK	IMS_A forwards ACK to AS/IM_A	
51				→							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A	
52		←									ACK	IMS_A forwards ACK to UE_A	
53	←					_				→		File transfer starts (see clause 5.3.3 and use 5.4.1 test description)	
54												File transfer completed (size checked)	
55				←					_		BYE	UE_B releases the file transfer	
56					\rightarrow						BYE	session with BYE IMS_A forwards BYE to IBCF_A	
57						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B	
58					1		\rightarrow				BYE	IBCF_B forwards BYE to IMS_B	
59								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B	
60							k	_			BYE	AS/IM_B returns, possibly modified,	
61						←	_				BYE	BYE to IMS_B IMS_B forwards BYE to IBCF_B	
62					←	\neg					BYE	IBCF_B forwards BYE to IBCF_A	
63				←	_						BYE	IBCF_A forwards BYE to IMS_A	
64			←								BYE	IMS_A forwards BYE to AS/IM_A	
65				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A	
66		4									BYE	IMS_A forwards BYE to UE_A	
67												User A is informed that file transfer	
68											200 OK	completed UE_A sends 200 OK for BYE	
68 69				7							200 OK 200 OK	IMS_A forwards 200 OK for BYE	
03			K									AS/IM_A	

Step					Direc	ction					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s r B		
70			·	→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
71					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
72						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
73							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
74								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
75							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
76						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
77					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
78				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
79									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
80										\rightarrow		User B is informed that file transfer completed
81 82	←									→		Users continue chatting Continue UC_RCS_4_R (90A-115B)

4.4.3.4 1-to-many chat

4.4.3.4.1 UC_RCS_6_I: SIP message flow for 1-to-many chat with CF_INT_AS

Following there are the expected common call flow sequences for normal procedure of 1-to-many chat. It is assumed that in 1-to-many chat there should be additional user C, but for the clarity in the call flow sequences only two users presented since the message flow for UE_C is the same as for the other users.

- NOTE 1: In this Use Case AS/IM_A server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_A should have configured IM CONFERENCE FACTORY URI.
- NOTE 2: According to RCS-e specification [11] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_INT_AS
1	User A initiates a 1-to-many Chat with User B and User C by sending initial message	Step 1
2	User A is informed that the 1-to-many Chat is established	Step 8
3	User B is informed of incoming invitation from User A to join the 1-to-many Chat	Step 25
4	User B reads the initial message and accepts the 1-to-many Chat invitation	Step 26
5	User A is notified with list of 1-to-many Chat participants	Step 47
6	User B is notified with list of 1-to-many Chat participants	Step 71
7	Users perform messaging in the 1-to-many Chat	Step 79
8A	User B leaves the 1-to-many Chat	Step 80A
8B	User A leaves the 1-to-many Chat	Step 80B
9A	User B is informed that he has left the 1-to-many Chat	Step 95A
9B	User A is informed that he has left the 1-to-many Chat	Step 85B
10A	User A is notified that all other users have left the 1-to-many Chat	Step 98A
10B	User B is notified that all other users have left the 1-to-many Chat	Step 93B

Step	Action	CF_INT_AS
11A	User A leaves the 1-to-many Chat	Step 101A
11B	User B leaves the 1-to-many Chat	Step 101B
12A	User A is informed that the 1-to-many Chat has ended	Step 106A
12B	User B is informed that the 1-to-many Chat has ended	Step 116B

Step					Directi	on					Message	Comment
	U		A	1			1	Α	I C	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		м	Ă	F	F	в	м	D	r		
	Α		Α		Α	В		В		В		
1		*										User A initiates a 1-to-many Chat
												with User B and User C by
2											INVITE	sending initial message UE_A sends INVITE to IMS_A
2												with Request-URI set to IM
												CONFERENCE FACTORY URI,
												MIME resource-list body including
												invited IM Users and the first SDP offer indicating all specific data
												for MSRP connection set up
3		←									100 Trying	IMS_A responds with a 100
												Trying provisional response
4			←	1							INVITE	IMS_A forwards INVITE to
5				_							100 Trying	AS/IM_A AS/IM_A responds with a 100
J				1								Trying provisional response
6											200 OK	AS/IM_A responds INVITE with
												200 OK response with IM session
												Identity allocated for the current
												1-to-many Chat to indicate that the session has been accepted
												and SDP to inform A-side with
												specific data for MSRP
7												connection set up
7		(200 OK	IMS_A forwards 200 OK response to AS/IM_A
8	~											User A is informed that the 1-to-
											1.01/	many Chat is established
9				*							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
10			<								ACK	IMS_A forwards ACK to AS/IM_A
11											INVITE	AS/IM_A sends INVITE to UE_B
				*								with IM session identity (allocated
												for the current 1-to-many Chat) and IM address of the Inviting IM
												UE (UE_A)
12			←	-							100 Trying	IMS_A responds with a 100
13				<u> </u>							INVITE	Trying provisional response IMS_A forwards INVITE to
10												IBCF_A
14				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
15						*					INVITE	IBCF_A forwards INVITE to
												IBCF_B
16					←	-					100 Trying	IBCF_B responds with a 100
17											INVITE	Trying provisional response IBCF_B forwards INVITE to
							1					IMS_B
18						←	-				100 Trying	IMS_B responds with a 100
19								<u> </u>			INVITE	Trying provisional response IMS_B forwards INVITE to
19												AS/IM_B
·		•	•	•	•	•	•	I			L	—

Step					Direc	tion					Message	Comment
	U	U	Α	I	Ι	Ι	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	~	M	A	F	F	В	M	5	r		
	Α		Α		Α	В		В		В		
20							←				100 Trying	AS/IM_B responds with a 100
21							(INVITE	Trying provisional response AS/IM_B returns, possibly
							Ì					modified, INVITE to IMS_B
22								→			100 Trying	IMS_B responds with a 100
23									<u>`</u>		INVITE	Trying provisional response IMS_B forwards INVITE to UE_B
20									1			
24							←				100 Trying	UE_B optionally responds with a
25												100 Trying provisional response
25									_	→		User B is informed of incoming invitation from User A to join the
												1-to-many Chat
26									<u> </u>	_		User B reads the initial message
												and accepts the 1-to-many Chat invitation
27											200 OK	UE_B responds INVITE with 200
												OK response with SDP to
							←					indicate that the session has been accepted and inform
												AS/IM_A with specific data for
												MSRP connection set up
28								→			200 OK	IMS_B forwards 200 OK
29											200 OK	response to AS/IM_B AS/IM_B returns, possibly
29							←				200 OK	modified, 200 OK response to
												IMS_B
30						←					200 OK	IMS_B forwards 200 OK
31					/						200 OK	response to IBCF_B IBCF_B forwards 200 OK
01											200 010	response to IBCF_A
32				←							200 OK	IBCF_A forwards 200 OK
33			,								200 OK	response to IMS_A IMS_A forwards 200 OK
33											200 OK	response to AS/IM_A
34				\rightarrow							ACK	AS/IM_A acknowledges the
05												receipt of 200 OK for INVITE
35					→						ACK	IMS_A forwards ACK to IBCF_A
36						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
07												
37							→				ACK	IBCF_B forwards ACK to IMS_B
38								→			ACK	IMS_B forwards ACK to AS/IM_B
39							<				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									→		ACK	IMS_B forwards ACK to UE_B
41				\rightarrow							SUBSCRIBE	UE_A subscribes to the
42											SUBSCRIBE	conference event package IMS_A forwards SUBCRIBE to
												AS/IM_A
43				\rightarrow							200 OK	AS/IM_A sends 200 OK for
44											200 OK	SUBSCRIBE IMS_A forwards 200 OK
44											200 UK	response to UE_A
45											NOTIFY	AS/IM_A sends NOTIFY to UE_A
				7								with list of 1-to-many Chat
			ļ	I		I						participants

Step					Direct	ion					Message	Comment
	U	U E	A S/	1			I	A S/	U E	U		
	s e	Ā	5/	M S	B C	B C	M S	5/ 	B	s e		
	r		м	Α	F	F	в	М		r		
46	A		A		A	В		В		В	NOTIFY	IMS_A forwards the NOTIFY to
40												UE_A
47												User A is notified with list of 1-to- many Chat participants
48				*							200 OK	UE_A responds with 200 OK to IMS_A
49			←								200 OK	IMS_A forwards the 200 OK response to AS/IM_A
50							←		_		SUBSCRIBE	UE_B subscribes to the conference event package
51								→			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
52							←	-			SUBSCRIBE	AS/IM_B returns, possibly modified, SUBSCRIBE to IMS_B
53						←	_				SUBSCRIBE	IMS_B forwards SUBSCRIBE to
54					(_					SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to IBCF_A
55				←	-						SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IMS_A
56			←								SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
57				¥							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
58					*						200 OK	IMS_A forwards 200 OK response to IBCF_A
59						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
60							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
61								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
62							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
63									→		200 OK	IMS_B forwards 200 OK response to UE_B
64				*							NOTIFY	AS/IM_A sends NOTIFY to UE_B with list of 1-to-many Chat participants
65					>						NOTIFY	IMS_A forwards BYE to IBCF_A
66						→					NOTIFY	IBCF_A forwards BYE to IBCF_B
67							→				NOTIFY	IBCF_B forwards BYE to IMS_B
68								→			NOTIFY	IMS_B forwards BYE to AS/IM_B
69							←	-			NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
70									→		NOTIFY	IMS_B forwards BYE to UE_B
71										→		User B is notified with list of 1-to- many Chat participants
72							←		-		200 OK	UE_B sends 200 OK for NOTIFY
73								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B

Step					Directi	on				-	Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	Ā	1	S	C	č	S	С, Т	В	e		
	r A		M A	Α	F A	F B	В	M B		r B		
74											200 OK	AS/IM_B returns, possibly
							< <u> </u>					modified, 200 OK response to
75						,					200 OK	IMS_B IMS_B forwards 200 OK
15											200 01	response to IBCF_B
76					←	-					200 OK	IBCF_B forwards 200 OK
77				←							200 OK	response to IBCF_A IBCF_A forwards 200 OK
												response to IMS_A
78			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
79												Users perform messaging in the
	←					_				→		1-to-many Chat (see clause 5.3.2.1Chat 1 to many via
												MSRP - Interworking and use
												5.4.2 test description)
80A									←			User B leaves the 1-to-many Chat
81A							←		-		BYE	UE_B sends BYE to IMS_B to
004											DVE	leave the 1-to-many Chat
82A								>			BYE	IMS_B forwards BYE to AS/IM_B
83A							<				BYE	AS/IM_B returns, possibly
84A						(BYE	modified, BYE to IMS_B IMS_B forwards BYE to IBCF_B
85A					<						BYE	IBCF_B forwards BYE to IBCF_A
86A				<u> </u>	_						BYE	IBCF_A forwards BYE to IMS_A
074												
87A			¢								BYE	IMS_A forwards BYE to AS/IM_A
88A				→							200 OK	AS/IM_A sends 200 OK for BYE
89A					_						200 OK	IMS_A forwards 200 OK
037					1						200 010	response to IBCF_A
90A						>					200 OK	IBCF_A forwards 200 OK
91A							\rightarrow				200 OK	response to IBCF_B IBCF_B forwards 200 OK
												response to IMS_B
92A)			200 OK	IMS_B forwards 200 OK response to AS/IM_B
93A											200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to
94A											200 OK	IMS_B IMS_B forwards 200 OK
												response to UE_B
95A												User B is informed that he has left the 1-to-many Chat
96A											NOTIFY	AS/IM_A sends NOTIFY to IMS
				7								_A to inform UE_A that User B
97A		←									NOTIFY	has left the 1-to-many Chat IMS_A forwards the NOTIFY to
		ľ										UE_A
98A	←	_										User A is notified that all other
												users have left the 1-to-many Chat
99A				→							200 OK	UE_A responds with 200 OK to
100A											200 OK	IMS_A IMS_A forwards the 200 OK
1007												response to AS/IM_A

Step		-			Direct	on					Message	Comment
	U s	UE	A S/	I M	I B	I B	I M	A S/	U E	U s		
	е	Ā	I	S	С	С	S	I	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
101A		→										User A leaves the 1-to-many Chat
102A		-		\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
103A			←								BYE	IMS_A forwards BYE to AS/IM_A
104A				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
105A		←									200 OK	IMS_A forwards 200 OK response to UE_A
106A	←											User A is informed that the 1-to- many Chat has ended
80B		→										User A leaves the 1-to-many Chat
81B				\rightarrow							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
82B			←								BYE	IMS_A forwards BYE to AS/IM_A
83B				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
84B		←									200 OK	IMS_A forwards 200 OK response to UE_A
85B	-	-										User A is informed that he has left the 1-to-many Chat
86B				\rightarrow							NOTIFY	AS/IM_A sends NOTIFY to IMS_A to inform UE_B that User
87B					→						NOTIFY	A has left the 1-to-many Chat IMS_A forwards BYE to IBCF_A
88B						4					NOTIFY	IBCF_A forwards BYE to IBCF_B
89B							-				NOTIFY	IBCF_B forwards BYE to IMS_B
90B								_			NOTIFY	IMS_B forwards BYE to AS/IM_B
							,					
91B							<				NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
92B									→		NOTIFY	IMS_B forwards BYE to UE_B
93B										\rightarrow		User B is notified that all other users have left the 1-to-many Chat
94B							~	-	-		200 OK	UE_B sends 200 OK for NOTIFY
95B								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
96B							←	-			200 OK	AS/IM_B returns, possibly modified, 200 OK response to
97B						←	_				200 OK	IMS_B IMS_B forwards 200 OK
98B					←	-					200 OK	response to IBCF_B IBCF_B forwards 200 OK
99B				←	_						200 OK	response to IBCF_A IBCF_A forwards 200 OK
100B			←								200 OK	response to IMS_A IMS_A forwards 200 OK
101B									(User B leaves the 1-to-many
102B							(_		BYE	Chat UE_B sends BYE to IMS_B to
						ļ			I	I		leave the 1-to-many Chat

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
103B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
104B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
105B						←					BYE	IMS_B forwards BYE to IBCF_B
106B					←						BYE	IBCF_B forwards BYE to IBCF_A
107B				←							BYE	IBCF_A forwards BYE to IMS_A
108B			←								BYE	IMS_A forwards BYE to AS/IM_A
109B				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
110B					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
111B						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
112B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
113B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
114B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
115B									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
116B										\rightarrow		User B is informed that the 1-to- many Chat has ended

4.4.3.4.2 UC_RCS_6_R: SIP message flow 1-to-many chat with CF_ROAM_AS (OPTIONAL)

NOTE 2: According to RCS-e specification [11] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_ROAM_AS
1	User B initiates a 1-to-many Chat with User A and User C by sending initial message	Step 1
2	User B is informed that the 1-to-many Chat is established	Step 17
3	User A is informed of incoming invitation from User B to join the 1-to-many Chat	Step 37
4	User A reads the initial message and accepts the 1-to-many Chat invitation	Step 38
5	User B is notified with list of 1-to-many Chat participants	Step 68
6	User A is notified with list of 1-to-many Chat participants	Step 95
7	Users perform messaging in the 1-to-many Chat	Step 103
8A	User A leaves the 1-to-many Chat	Step 104A
8B	User B leaves the 1-to-many Chat	Step 104B
9A	User A is informed that he has left the 1-to-many Chat	Step 119A
9B	User B is informed that he has left the 1-to-many Chat	Step 115B
10A	User B is notified that all other users have left the 1-to-many Chat	Step 125A
10B	User A is notified that all other users have left the 1-to-many Chat	Step 123B
11A	User B leaves the 1-to-many Chat	Step 131A
11B	User A leaves the 1-to-many Chat	Step 131B
12A	User B is informed that the 1-to-many Chat has ended	Step 142A

NOTE 1: In this Use Case AS/IM_B server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_B should have configured IM CONFERENCE FACTORY URI.

Step	Action	CF_ROAM_AS
12B	User A is informed that the 1-to-many Chat has ended	Step 146B

Step					Direct	ion					Message	Comment
	U	U	Α	I	Ι	I	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	M	В	e r		
	A		A	~	A	В	D	B		B		
1												User B initiates a 1-to-many Chat
												with User A and User C by sending
											14 N // 	initial message
2											INVITE	UE_B sends INVITE to IMS_A with
												Request-URI set to IM CONFERENCE FACTORY URI,
				←								MIME resource-list body including
												invited IM Users and the first SDP
												offer indicating all specific data for
											100 T :	MSRP connection set up
3									→		100 Trying	IMS_A responds with a 100 Trying provisional response
4					→						INVITE	IMS_A forwards INVITE to IBCF_A
					1							
5				←	_						100 Trying	IBCF_A responds with a 100 Trying
												provisional response
6						→					INVITE	IBCF_A forwards INVITE to IBCF_B
7					(100 Trying	IBCF_B responds with a 100 Trying
'											roo rrying	provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						/					100 Trying	IMS_B responds with a 100 Trying
Ŭ											roo rrying	provisional response
10								→			INVITE	IMS_B forwards INVITE to
												AS/IM_B
11							←	_			100 Trying	AS/IM_B responds with a 100
12											200 OK	Trying provisional response AS/IM_B responds INVITE with
12											200 010	200 OK response with IM session
							,					Identity allocated for the current 1-
												to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific data for MSRP connection set up
13						<u> </u>					200 OK	IMS_B forwards 200 OK response
												to IBCF_B
14					←						200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
15				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
16									\rightarrow		200 OK	IMS_A forwards 200 OK response
									1			to UE_B
17										→		User B is informed that the 1-to-
18				/							ACK	many Chat is established UE_B acknowledges the receipt of
10											ACI	200 OK for INVITE
19					→						ACK	IMS_A forwards ACK to IBCF_A
20						→					ACK	IBCF_A forwards ACK to IBCF_B
21							→				ACK	IBCF_B forwards ACK to IMS_B
22								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
		I	I	I	I	I	I	I	I	I	L	

Step					Direct	ion					Message	Comment
	U	U	A	I	Ι	Ι	I	A	U	U		
	s e	E A	S/ I	M S	B C	B C	M S	S/	E B	s e		
	r		м	Α	F	F	В	М		r		
23	A		A		A	В		B		B	INVITE	AS/IM_B sends INVITE to UE_A
							←					with IM session identity (allocated
												for the current 1-to-many Chat) and IM address of the Inviting IM UE
												(UE_B)
24								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
25						←					INVITE	IMS_B forwards INVITE to IBCF_B
26							→				100 Trying	IBCF_B responds with a 100 Trying provisional response
27					←	_					INVITE	IBCF_B forwards INVITE to IBCF_A
28						→					100 Trying	IBCF_A responds with a 100 Trying provisional response
29				←	_						INVITE	IBCF_A forwards INVITE to IMS_A
30					\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
31			←								INVITE	IMS_A forwards INVITE to AS/IM_A
32				→							100 Trying	AS/IM_A responds with a 100
33				→							INVITE	Trying provisional response AS/IM_A returns, possibly
34			←								100 Trying	modified, INVITE to IMS_A IMS_A responds with a 100 Trying
35		←	_								INVITE	provisional response IMS_A forwards INVITE to UE_A
36				→							100 Trying	UE_A optionally responds with a
37												100 Trying provisional response User A is informed of incoming
												invitation from User B to join the 1- to-many Chat
38		→										User A reads the initial message
												and accepts the 1-to-many Chat invitation
39											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate
				\rightarrow								that the session has been accepted
												and inform AS/IM_A with specific data for MSRP connection set up
40			←								200 OK	IMS_A forwards 200 OK response
41											200 OK	to AS/IM_A AS/IM_A returns, possibly
				→							200 01	modified, 200 OK response to IMS_A
42					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
43						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
44							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
45								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
46							←				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
47						←					ACK	IMS_B forwards ACK to IBCF_B
	I	I	1	ļ	I	I	ļ	I		I		

u u u a i i i a i i a i i a a i a	Step				l	Directi	on				Message	Comment
e A I S C C S I B e 48 A B B B B B B A 49 A A B B B B A CK BCF_B forwards ACK to IBCF_A 50 A A CK BCF_A forwards ACK to IMS_A ACK MS_A forwards ACK to IMS_A 51 A CK MS_A forwards ACK to IMS_A ACK MS_A forwards ACK to IMS_A 53 A CK MS_A forwards ACK to IMS_A ACK MS_A forwards ACK to IMS_A 56 A CK MS_A forwards ACK to IMS_A ACK MS_A forwards ACK to IMS_A 57 A SUBSCRIBE IMS_A forwards SUBSCRIBE to ImBCF_B SUBSCRIBE to ImBCF_B SUBSCRIBE to ImBCF_B 58 SUBSCRIBE IMS_A forwards SUBSCRIBE to ImBCF_B SUBSCRIBE SUBSCRIBE SUBSCRIBE ASIM B SOO K for SUBSCRIBE to ImBCF_B SUBSCRIBE SUBSCRIBE SUBSCRIBE ASIM B SOO K for SUBSCRIBE SUBSCRIBE ASIM B SOO K for SUBSCRIBE SUBSCRIBE ASIM B SOO K for SUBSCRI		-			I		I	I				
r M A F B M r 48 A A F F B A CK IBCF_B forwards ACK to IBCF_A 50 A CK IBCF_A forwards ACK to ISM_A ACK IBCF_A forwards ACK to ISM_A 51 A CK IBCF_A forwards ACK to ISM_A ACK ISM_A returns, possibly 52 A CK ISM_A forwards ACK to ISM_A ACK ISM_A returns, possibly 53 A CK ISM_A forwards ACK to ISM_A ACK ISM_A forwards ACK to ISM_A 54 A CK ISM_A forwards SUBSCRIBE to IBCF_A ISM_B forwards SUBSCRIBE to IBCF_A ISM_B forwards SUBSCRIBE to ISM_B forwards SUBSCRIBE to ISM_B forwards 200 OK for SUBSCRIBE ISM_B forwards SUBSCRIBE to ISM_B forwards 200 OK for ISM_B forwards 200 OK response ISM_B forwards		_		-						_		
48 ACK BCF_B forwards ACK to IBCF_A 49 ACK BCF_A forwards ACK to IMS_A 50 ACK BCF_A forwards ACK to AS/IM_A 51 ACK IBCF_A forwards ACK to IMS_A 52 ACK IBCF_R forwards ACK to IMS_A 53 ACK IBCF_R forwards ACK to UE A 54 MCK IBCF_R forwards ACK to UE A 55 SIBSCRIBE UE_B subscribes to the conference 56 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 57 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 58 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 59 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 50 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 50 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 51 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 52 SUBSCRIBE IBCF_R forwards SUBSCRIBE to 53 SUBSCRIBE IBCF_R forwards SUB KOR RES 54 SUBSCRIBE IBCF_R forwards NOTIFY to UE_R 56 IBCF_R forwards NOTIFY to UE_R IBCF_R forwards NOTIFY to UE_R 56 <t< td=""><td></td><td>-</td><td>^</td><td>-</td><td></td><td></td><td></td><td></td><td>-</td><td></td><td></td><td></td></t<>		-	^	-					-			
49 60 51 52 53 54 55 56 56 57 56 57 56 57 58 59 60 61 57 58 59 60 61 57 58 59 60 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 68 69	- 10	Α		Α		A	В		В	B		
50 51 52 53 54 55 56 56 57 58 59 60 51 58 57 58 57 58 59 60 61 62 63 58 59 60 61 62 63 64 57 58 59 60 61 62 63 64 65 66 67 68 69 60 61 62 63 64 65 66 67 68 69 70 71	48					<u> </u>					ACK	IBCF_B forwards ACK to IBCF_A
51 ACK ASIM A returns, possibly 52 ACK IMS_A forwards ACK to UE_A 53 ACK IMS_A forwards ACK to UE_A 54 SUBSCRIBE SUBSCRIBE to English 56 BCF_A Arowards SUBSCRIBE to English 57 BCF_B SUBSCRIBE 58 SUBSCRIBE SUBSCRIBE to English 59 SUBSCRIBE SUBSCRIBE 60 BCF_B SUBSCRIBE 61 SUBSCRIBE SUBSCRIBE 53 SUBSCRIBE SUBSCRIBE 60 BCF_B SUBSCRIBE 61 BCF_B SUBSCRIBE 62 SUBSCRIBE SUBSCRIBE 200 OK BCF_B Sourds 200 OK response 61 BCF_B Sourds NOTIFY to UE_B 83 SUBSCRIBE Sourds NOTIFY to UE_B 84 SDE Sourds NOTIFY to UE_B 85 SOURFY Sourds NOTIFY to UE_B 86 SOURFY Sourds NOTIFY to UE_B 87 Sourds NOTIFY to UE_B Sourds NOTIFY to UE_B 88 SOURFY Sourwards NOTI	49				←	-					ACK	IBCF_A forwards ACK to IMS_A
52 modified. Ack to iMS, A' 53 Ack MS, A forwards Ack to UE, A 54 SUBSCRIBE SUBSCRIBE to 56 BCF, A SUBSCRIBE to 57 SUBSCRIBE SUBSCRIBE to 58 SUBSCRIBE to BCF, B 59 SUBSCRIBE to BCF, B 60 SUBSCRIBE to SUBSCRIBE to 58 SUBSCRIBE to SUBSCRIBE to 59 SUBSCRIBE SUBSCRIBE to 60 SUBSCRIBE to SUBSCRIBE to 61 SUBSCRIBE SUBSCRIBE to 62 SUBSCRIBE SUBSCRIBE 200 OK MS, B forwards 200 OK response 61 SUBSCRIBE SUBSCRIBE 62 SUBSCRIBE SUBSCRIBE 70 SUBSCRIBE SUBSCRIBE 71 SUBSCRIBE SUBSCRIBE 69 SUBSCRIBE SUBSCRIBE 71 SUBSCRIBE SUBSCRIBE 72 SUBSCRIBE SUBSCRIBE 73 SUBSCRIBE SUBSCRIBE 76 SUBSCRIBE SUBSCRIBE	50			←							ACK	IMS_A forwards ACK to AS/IM_A
62 ACK IMS_A forwards ACK to UE_A 53 54 SUBSCRIBE UE B subscribes to the conference event package 56 56 IMS_A forwards SUBSCRIBE to IBCF A 56 SUBSCRIBE IMS_B forwards SUBSCRIBE to IMS_B forwards SUBSCRIBE to IMS_B forwards SUBSCRIBE to AS/MB_B sends 200 OK for SUBSCRIBE to MS_A AS/ML_B sends 200 OK response to IBCF A forwards NOTIFY to UE_B with IBCF B forwards NOTIFY to UE_B with IBCF A forwards NOTIFY to UE_B with IBCF A forwards NOTIFY to UE_B monthelement of the conterence on the sector of the s	51				*						ACK	
64 55 56 57 58 59 60 61 58 59 60 61 58 60 61 62 63 64 65 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 77 77 77	52		←								ACK	
54 55 56 57 58 59 60 61 62 63 64 65 66 67 77 78 79 60 61 62 63 64 65 66 67 68 70 71 71 72 73 74 76 77 77 77 77	53				←──						SUBSCRIBE	
55 56 56 57 58 59 60 61 62 63 64 65 66 67 68 77 78 79 61 62 63 64 65 66 67 68 70 71 71 72 73 74 76 77 77 76 77	54				;						SUBSCRIBE	IMS_A forwards SUBSCRIBE to
56 57 58 59 60 61 62 63 64 65 66 67 68 69 67 68 69 70 71 71 71 71 71 74 76 76 77 77 77 77	55						*				SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
57 58 59 60 61 61 62 63 63 64 65 66 67 68 69 67 68 67 68 69 67 68 69 69 70 70 71 71 71 71 71 72 73 74 75 76 77 77	56							*			SUBSCRIBE	IBCF_B forwards SUBSCRIBE to
58 59 60 61 61 62 63 63 64 65 66 66 67 68 67 68 67 68 67 68 67 68 67 70 71 72 73 73 74 76 77 77	57								→		SUBSCRIBE	IMS_B forwards SUBSCRIBE to
59 200 OK IMS_B forwards 200 OK response to IBCF_B 61 61 00 OK IBCF_A forwards 200 OK response to IBCF_A 62 200 OK IMS_A forwards 200 OK response to IMS_A 63 200 OK IMS_A forwards 200 OK response to IMS_A 64 00 OK IBCF_A forwards 200 OK response to IMS_A 65 00 OK IMS_A forwards 200 OK response to IMS_A 66 00 OK IMS_A forwards NOTIFY to UE_B 67 00 OK IMS_A forwards NOTIFY to UE_B 68 00 OK IMS_A forwards NOTIFY to UE_B 68 00 OK User B is notified with list of 1-to-many Chat participants 69 00 OK User B is notified with list of 1-to-many Chat participants 70 10 OK IMS_A forwards 200 OK to IMS_A 71 10 OK 10 OK 10 OK 71 10 OK 10 OK 10 OK 71 10 OK 10 OK response to IBCF_B. 200 OK 73 00 OK 10 S. B forwards 200 OK response to IBCF_B. 200 OK 76 77 00 OK 10 S. A forwards SUBSCRIBE to MS_A 77 00 OK 10 S. A	58							←			200 OK	AS/IM_B sends 200 OK for
60 200 OK IBCF_B forwards 200 OK response to IBCF_A 61 IBCF_A forwards 200 OK response to UBCF_A 200 OK 63 00 OK IBCF_B forwards 200 OK response to UBCF_A 64 00 OK IBCF_B forwards 200 OK response to UBCF_B 65 00 OK IBCF_B forwards NOTIFY to UE_B 66 00 OK IBCF_B forwards NOTIFY to UE_B 66 00 OK IBCF_B forwards NOTIFY to UE_B 67 IBCF_B forwards NOTIFY to UE_B 68 00 OK IBCF_A forwards NOTIFY to UE_B 68 00 OK IBCF_A forwards NOTIFY to UE_B 69 00 OK USer B is notified with list of 1-to- many Chat participants 70 00 OK IMS_A forwards 200 OK response to IBCF_A 71 00 OK IBCF_A forwards 200 OK response to IBCF_A 71 00 OK IBCF_B forwards 200 OK response to ASI/M_B 74 00 OK IBCF_B forwards 200 OK response to ASI/M_A returns, possibly modified, SUBSCRIBE to ASI/M_A returns, possibly modified, SUBSCRIBE to ASI/M_A	59						←				200 OK	IMS_B forwards 200 OK response
61 200 OK IBCF_A forwards 200 OK response to UE_B 63 000 KIMS_A 200 OK response to UE_B 63 000 KIMS_A forwards 200 OK response to UE_B 64 000 KIMS_A forwards NOTIFY to UE_B 65 000 KIMS_A 66 000 KIMS_A 67 000 KIMS_A 68 000 KIMS_A 000 KIMS_A 18CF_A forwards NOTIFY to UE_B 000 KIMS_A 18CF_A 000 KIMS_A 18CF_B 200 OK 18CF_B	60					←	-				200 OK	IBCF_B forwards 200 OK response
62 200 OK IMS_A forwards 200 OK response to UE_B 63 0 NOTIFY AS/IM_B sends NOTIFY to UE_B 64 64 0 IMS_B forwards NOTIFY to IBCF_B 65 0 NOTIFY IBCF_B forwards NOTIFY to IBCF_A 66 0 0 IMS_A forwards NOTIFY to IBCF_A 67 0 0 IBCF_A 68 0 0 IMS_A forwards NOTIFY to IBCF_A 69 0 0 User B is notified with list of 1-to- many Chat participants 70 0 0 USer B is notified with list of 1-to- many Chat participants 70 0 0 0 USer B is notified with list of 1-to- many Chat participants 71 0 0 0 0 0 71 0 0 0 0 0 71 0 0 0 0 0 0 72 0 0 0 0 0 0 0 73 0 0 0 0 0 0 0 0 76 76 0 <td>61</td> <td></td> <td></td> <td></td> <td>←</td> <td>•</td> <td></td> <td></td> <td></td> <td></td> <td>200 OK</td> <td>IBCF_A forwards 200 OK response</td>	61				←	•					200 OK	IBCF_A forwards 200 OK response
63 NOTIFY AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants 64 NOTIFY IMS_B forwards NOTIFY to IBCF_B 65 NOTIFY IBCF_B forwards NOTIFY to IBCF_A forwards NOTIFY to IBCF_A 66 NOTIFY IBCF_A forwards NOTIFY to UE_B 67 IBCF_A forwards NOTIFY to UE_B 68 User B is notified with list of 1-to-many Chat participants 69 User B is notified with list of 1-to-many Chat participants 70 IMS_A forwards 200 OK response to IBCF_A 71 IBCF_A forwards 200 OK response to IBCF_B 73 IBCF_B forwards 200 OK response to IBCF_B 74 IBCF_A forwards 200 OK response to IBCF_B 75 SUBSCRIBE 76 IMS_A forwards SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	62									→	200 OK	IMS_A forwards 200 OK response
64 A 65 A 66 B 67 BCF_B 68 A 69 A 70 A 71 A 72 A 73 A 74 A 75 A 76 A 77 A 77 A 77 A 77 A	63							←	_		NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat
65	64						←	-			NOTIFY	IMS_B forwards NOTIFY to
66 NOTIFY IBCF_A forwards NOTIFY to IMS_A 67 NOTIFY IMS_A forwards NOTIFY to UE_B 68 User B is notified with list of 1-to- many Chat participants 69 User B is notified with 200 OK to IMS_A 70 IMS_A forwards 200 OK response to IBCF_A 71 200 OK IMS_A forwards 200 OK response to IBCF_B 73 200 OK IBCF_B forwards 200 OK response to IBCF_B 74 SUBSCRIBE USSCRIBE to MS_A SUBSCRIBE 76 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A	65					←	-				NOTIFY	IBCF_B forwards NOTIFY to
67 IMS_A forwards NOTIFY to UE_B 68 User B is notified with list of 1-to-many Chat participants 69 200 OK UE_B responds with 200 OK to IMS_A 70 200 OK IMS_A forwards 200 OK response to IBCF_B 71 200 OK IBCF_A forwards 200 OK response to IBCF_B 72 200 OK IBCF_B forwards 200 OK response to IBCF_B 73 200 OK IBCF_A forwards 200 OK response to IMS_B 74 SUBSCRIBE UE_A subscribes to the conference event package 75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	66				←──	-					NOTIFY	IBCF_A forwards NOTIFY to
69 many Chat participants 70 200 OK UE_B responds with 200 OK to IMS_A 71 200 OK IMS_A forwards 200 OK response to IBCF_A 71 200 OK IBCF_B B 72 200 OK IBCF_B B 73 200 OK IBCF_B forwards 200 OK response to IBCF_B 74 200 OK IBCF_B forwards 200 OK response to IMS_B 74 SUBSCRIBE UE_A subscribes to the conference event package 75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 76 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	67									→	NOTIFY	
69 200 OK UE_B responds with 200 OK to IMS_A 70 200 OK IMS_A forwards 200 OK response to IBCF_A 71 200 OK IBCF_A forwards 200 OK response to IBCF_B 72 200 OK IBCF_B forwards 200 OK response to IMS_B 73 200 OK IBCF_B forwards 200 OK response to AS/IM_B 74 74 SUBSCRIBE IMS_A forwards 200 OK response to AS/IM_B 76 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A SUBSCRIBE 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	68									\rightarrow		
70 200 OK IMS_A forwards 200 OK response to IBCF_A 71 71 200 OK IBCF_A forwards 200 OK response to IBCF_B 72 73 73 200 OK IBCF_B forwards 200 OK response to IBCF_B 73 74 74 200 OK IBCF_A forwards 200 OK response to IMS_B 75 75 5 5 5 76 77 5 5 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A 77 77 5 5 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	69				~						200 OK	UE_B responds with 200 OK to
71 200 OK IBCF_A forwards 200 OK response to IBCF_B 72 200 OK IBCF_B forwards 200 OK response to IMS_B 73 74 200 OK IBCF_A forwards 200 OK response to IMS_B 74 74 9 9 75 6 9 9 76 77 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9 77 9 9 9	70				—						200 OK	IMS_A forwards 200 OK response
72 200 OK IBCF_B forwards 200 OK response to IMS_B 73 74 200 OK IMS_B forwards 200 OK response to AS/IM_B 74 74 SUBSCRIBE UE_A subscribes to the conference event package 75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 76 77 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A	71						*				200 OK	IBCF_A forwards 200 OK response
73 200 OK IMS_B forwards 200 OK response to AS/IM_B 74 74 SUBSCRIBE UE_A subscribes to the conference event package 75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 76 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	72							*			200 OK	IBCF_B forwards 200 OK response
74 SUBSCRIBE UE_A subscribes to the conference event package 75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 76 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	73								→		200 OK	IMS_B forwards 200 OK response
75 SUBSCRIBE IMS_A forwards SUBSCRIBE to AS/IM_A 76 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to IMS_A	74										SUBSCRIBE	UE_A subscribes to the conference
76 SUBSCRIBE AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A 77 SUBSCRIBE IMS_A forwards SUBSCRIBE to	75			←	-						SUBSCRIBE	IMS_A forwards SUBSCRIBE to
77 SUBSCRIBE IMS_A forwards SUBSCRIBE to	76				*						SUBSCRIBE	AS/IM_A returns, possibly
	77				 						SUBSCRIBE	

Step			1		Direct	tion		n	•	1	Message	Comment
	U s	U E	A S/	M	I B	I B	I M	A S/	UE	U s		
	e	Ā	I,	S	č	c	S	1	В	e		
	r		M	Α	F A	F B	В	M B		r B		
78	A		A			<u></u> ₽		В		В	SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
79							\rightarrow				SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to
80								→			SUBSCRIBE	IMS_B IMS_B forwards SUBSCRIBE to
81							←				200 OK	AS/IM_B AS/IM_B sends 200 OK for
82						←					200 OK	SUBSCRIBE IMS_B forwards 200 OK response
83					<i>(</i>						200 OK	to IBCF_B IBCF_B forwards 200 OK response
84				/							200 OK	to IBCF_A IBCF_A forwards 200 OK response
												to IMS_A
85			<								200 OK	IMS_A forwards 200 OK response to AS/IM_A
86				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
87		←									200 OK	IMS_A forwards 200 OK response to UE_A
88							←				NOTIFY	AS/IM_B sends NOTIFY to UE_A with list of 1-to-many Chat participants
89						←					NOTIFY	IMS_B forwards BYE to IBCF_B
90					←	_					NOTIFY	IBCF_B forwards BYE to IBCF_A
91				←	_						NOTIFY	IBCF_A forwards BYE to IMS_A
92			←								NOTIFY	IMS_A forwards BYE to AS/IM_A
93				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, BYE to IMS_A
94		←									NOTIFY	IMS_A forwards BYE to UE_A
95	←	-										User A is notified with list of 1-to- many Chat participants
96				\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
97			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
98				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
99					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
100						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
101							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
102								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
103	<							-*		—		Users perform messaging in the 1- to-many Chat (see clause 5.3.2.2
												Chat 1 to many via MSRP - Roaming and use 5.4.2 test description)
104A		→										User A leaves the 1-to-many Chat

s E S I S I B B S I B	Step					Direc	tion					Message	Comment
e A I S C C S I B		U	UF		I M	l B	l B	I M		UF	U		
A A B B 1066A BYE UE A sends BYE to IMS, A to leave the 14-o-many Chat 1077 BYE UE A sends BYE to IMS, A to leave the 14-o-many Chat 1074 BYE MS, A forwards BYE to IMS, A to leave the 14-o-many Chat 1076 BYE MS, A forwards BYE to IMS, B 1077 BYE MS, A forwards BYE to IMS, B 1080 BYE IMS, A forwards BYE to IMS, B 1080 BYE IMS, A forwards BYE to IMS, B 1110 BYE INC, A forwards BYE to IMS, B 1110 BYE INC, B forwards BYE to IMS, B 1112A BYE IMS, B forwards 200 OK response to IMS, B forwards 200 OK response to IMS, A forward				-									
105A UFE UFE_A sends PYE 10 MS_A To leave the 1-to-mary Chat 107A BYE MS_A forwards BYE to AS/IM_A 107A BYE MS_A forwards BYE to IBCF_A 108A BYE MS_A forwards BYE to IBCF_A 109A BYE IBCF_A forwards BYE to IBCF_B 110A BYE IBCF_B forwards BYE to IBCF_B 111A BYE IBCF_B forwards BYE to ISCF_B 111A BYE IBCF_B forwards BYE to ISCF_B 111A IBCF_B forwards DO K response to IBCF_B forwards 200 OK response to INS_A 118A IBCF_B forwards 200 OK response to INS_A 118A IBCF_B		r			Α	-	-	В					
106A IMS_A forwards BYE to AS/IM_A 107A BYE IMS_A forwards BYE to AS/IM_A 108A BYE AS/IM_A returns, possibly 108A BYE IMS_A forwards BYE to IBCF_A 109A BYE IBCF_A forwards BYE to IBCF_B 111A BYE IBCF_B forwards BYE to AS/IM_B 112A BYE IBCF_B forwards BYE to AS/IM_B 113A COOK AS/IM_B sends 200 OK response 114A COOK AS/IM_A returns, possibly 115A COOK AS/IM_A returns, possibly 116A COOK AS/IM_B sends 200 OK response 116A COOK IBCF_B forwards 200 OK response 117A COOK IBCF_B forwards 200 OK response 118A COOK MS_A forwards 200 OK response 118A COOK AS/IM_A returns, possibly 118A COOK MS_A forwards 200 OK response 118A COOK MS_A forwards 200 OK response 118A COOK MS_A forwards NOTIFY to IMS_B Forwards NOTIFY to IMS_A Forwards NOTIF	105A				⊥I →							BYE	
107A 108A 109A 111A 111A <t< td=""><td>106A</td><td></td><td></td><td>←</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>BYE</td><td></td></t<>	106A			←								BYE	
108A Imodified, PETE to MS, A. / 109A BYE 109A BYE 109A BYE 110A BYE 111A BYE 111A <td< td=""><td>1074</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>BVE</td><td></td></td<>	1074											BVE	
109A BYE IBCF_A forwards BYE to IBCF_B 110A BYE IBCF_B forwards BYE to IBC_B 111A BYE IBCF_B forwards BYE to AS/IM_B 112A BYE IBCF_B forwards 200 OK response 113A IBCF_B forwards 200 OK response to IBCF_B 114A IBCF_A forwards 200 OK response to IBCF_B 115A IBCF_A forwards 200 OK response to IBCF_B 116A IBCF_B forwards 200 OK response to IBCF_A 116A IBCF_B forwards 200 OK response to IBCF_A 117A IBCF_B forwards 200 OK response to IBCF_B 118A IBCF_B forwards NOTIFY to IBS_B to Inform UE_B 122A IBCF_B forwards NOTIFY to IBS_B to IBCF_B 122A IBCF_B forwards NOTIFY					1								modified, BYE to IMS_A
110A 111A 111A 111A 111A 112A 113A 114A 114A 114A 115A 114A 115A 114A 115A 114A 115A 114A 115A 115A 116A 117A 118A 118A 118A 118A 118A 1122A 122A 122	108A					\rightarrow							
111A BYE IMS_B forwards BYE to AS/IM_B 112A 200 OK AS/IM_B sends 200 OK for BYE 113A 200 OK AS/IM_B sends 200 OK response to IBCF_B forwards 200 OK response 111A 200 OK IBS_B forwards 200 OK response 111A 200 OK IBCF_B forwards 200 OK response 111A 200 OK IBCF_A forwards 200 OK response 111A 200 OK MS_B forwards 200 OK response 111A 200 OK MS_A forwards 200 OK response 111A 200 OK IMS_A forwards 200 OK response 111A 200 OK IMS_A forwards 200 OK response 111A 200 OK IMS_A forwards NOTIFY to IMS_B 112A 201 OK IMS_A forwards NOTIFY to UK_B 112A 201 OK IBCF_B forwards NOTIFY to UK_B 112A 201 OK IBCF_A forwards 200 OK response 122A 200 OK IBCF_A forwards 200 OK	109A						→					BYE	IBCF_A forwards BYE to IBCF_B
112A 113A 113A 111A 111BA 1112A 111BA 1122A 1122A 1122A 122A 122A 122A	110A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
113A 114A 114A 114A 114A 114A 114A 115A 115A 115A 116A 117A 117A 118A 117A 1120A 1122A	111A								→			BYE	IMS_B forwards BYE to AS/IM_B
114A io 16CF_B 114A 200 OK 115A BCF_B forwards 200 OK response to IBCF_A 115A Colored is a stress of the isster isster isster isster is a stress of the isster isster isster is a stress of the isster isster is a stress of the isster isster isster is a stress of the isster is a stress of the isster is a stress of the isster isster isster is a stress of the isster isster is a stress of the isster isster isster isster is a stress of the isster is a stress of the isster isster is a stress of the isster isster is a stress of the isster isster is a stress of the isster is a stress of the isster isster isster isster is a stress of the isster isster isster isster is a stress of the isster isster isster isster isster isster is a stress of the isster isster is a stress of the isster isstress of the isster isster isstress of the isster isst	112A							←				200 OK	AS/IM_B sends 200 OK for BYE
114A 115A 115A 115A 115A 116A 116A 117A 118A 118A 119A 119A 112A 112A <t< td=""><td>113A</td><td></td><td></td><td></td><td></td><td></td><td>←</td><td>_</td><td></td><td></td><td></td><td>200 OK</td><td></td></t<>	113A						←	_				200 OK	
115A 200 OK IBCF_A forwards 200 OK response to IMS_A 1117A 200 OK IBCF_A forwards 200 OK response to IMS_A 1117A 200 OK IMS_A forwards 200 OK response to IMS_A 1118A 200 OK IMS_A forwards 200 OK response to IMS_A 1118A 200 OK IMS_A forwards 200 OK response to IMS_A 1118A 200 OK IMS_A forwards 200 OK response to IMS_A 1119A 200 OK IMS_A forwards 200 OK response to IMS_A 1120A User A is informed that he has left the 1-to-many Chat 1122A IBCF_B forwards NOTIFY to IMS_B 1122A IBCF_B forwards NOTIFY to IBCF_A 1122A IBCF_B forwards NOTIFY to UE_B 1122A IBCF_B forwards NOTIFY to UE_B 1122A IBCF_A forwards NOTIFY to UE_B 1122A IBCF_B forwards NOTIFY to UE_B 1124A IBCF_A forwards NOTIFY to UE_B 1125A IBCF_B forwards 200 OK response to IMS_A forwards 200 OK response to MS_B forwards 200 OK re	114A					←	_					200 OK	IBCF_B forwards 200 OK response
116A 200 OK IMS A forwards 200 OK response to IMS A 117A 200 OK IMS A forwards 200 OK response to IMS A 118A 200 OK IMS A forwards 200 OK response to IMS A 118A 200 OK IMS A forwards 200 OK response to IMS A 119A User A is informed that he has left the 1-to-many Chat User A is informed that he has left the 1-to-many Chat 120A Image: Comparison of the temperature of temperature of the temperature of temperature of temperature of the temperature of temperature	115A				←	_						200 OK	IBCF_A forwards 200 OK response
117A 200 OK AS/IM_A returns, possibly modified, 200 OK response to IMS_A 118A 200 OK IMS_A forwards 200 OK response to UE_A 119A User A is informed that he has left the 1-to-many Chat 120A User A is informed that he has left the 1-to-many Chat 121A Image: Comparison of the image is informed that he has left the 1-to-many Chat 122A Image: Comparison of the image is informed that he has left the 1-to-many Chat 122A Image: Comparison of the image is informed that he has left the 1-to-many Chat 122A Image: Comparison of the image is informed that he has left the 1-to-many Chat 122A Image: Comparison of the image is informed that he has left the 1-to-many Chat 122A Image: Comparison of the image is informed that all other users have left the 1-to-many Chat 123A Image: Comparison of the image is informed that all other users have left the 1-to-many Chat 126A Image: Comparison of the image is informed that all other users have left the 1-to-many Chat 127A Image: Comparison of the image is informed that all other users have left the 1-to-many Chat 128A Image: Comparison of the image is informed the image	116A			←								200 OK	IMS_A forwards 200 OK response
118A IMS_A 118A 200 OK IMS_A forwards 200 OK response to UE_A 119A User A is informed that he has left the 1-to-many Chat 120A NOTIFY AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User A has left the 1-to-many Chat 121A NOTIFY IBCF_B 122A NOTIFY IBCF_B forwards NOTIFY to IBCF_A 122A NOTIFY IBCF_A forwards NOTIFY to IBCF_A 122A User B is notified that all other users have left the 1-to-many Chat 125A User B is notified that all other users have left the 1-to-many Chat 126A User B is notified that all other users have left the 1-to-many Chat 127A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 131A User B is notiffect	117A											200 OK	AS/IM_A returns, possibly
119A to UE_A 120A User A is informed that he has left the 1-to-many Chat 120A NOTIFY 121A AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User A has left the 1-to-many Chat 122A NOTIFY 122A NOTIFY 122A NOTIFY 122A NOTIFY 122A NOTIFY 123A NOTIFY 124A NOTIFY 124A NOTIFY 125A User B is notified that all other users have left the 1-to-many Chat 126A User B is notified that all other users have left the 1-to-many Chat 127A User B responds with 200 OK to IMS_A 128A IBCF_B forwards 200 OK response to IBCF_A 129A IBCF_B forwards 200 OK response to IBCF_B 130A IBCF_B forwards 200 OK response to IBCF_B torwards 200 OK response to AS/IM_B 131A IBCF_B forwards 200 OK response to AS/IM_B 132A IBCF_B forwards 200 OK response to AS/IM_B													IMS_A
120A the 1-to-many Chat 120A NOTIFY 121A NOTIFY 121A NOTIFY 122A NOTIFY 122A NOTIFY 122A IBCF_B 122A NOTIFY 123A NOTIFY 124A NOTIFY 125A NOTIFY 125A NOTIFY 126A NOTIFY 127A User B is notified that all other users have left the 1-to-many Chat 127A User B is notified that all other users have left the 1-to-many Chat 127A User B is notified that all other users have left the 1-to-many Chat 127A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 129A User B is notified that all other users have left the 1-to-many Chat 130A User B is notified that all other users have left the 1-to-many Chat 131A User B is notified that all other users have left the 1-to-many Chat 132A BYE User B is notified that all other users have left the 1-to-many Chat	118A		←									200 OK	to UE_A
120A NOTIFY AS/IM_B sends NOTIFY to IMS_B to inform UE_B that User A has left the 1-to-many Chat 121A NOTIFY IMS_B forwards NOTIFY to IBCF_B 122A NOTIFY IBCF_B forwards NOTIFY to IBCF_A 123A NOTIFY IBCF_A forwards NOTIFY to UE_B 124A NOTIFY IBCF_A forwards NOTIFY to UE_B 125A User B is notified that all other users have left the 1-to-many Chat 126A 200 OK USer B is notified that all other users have left the 1-to-many Chat 127A 200 OK IBCF_A 128A 200 OK IBCF_B forwards 200 OK response to IBCF_B 129A 200 OK IBCF_B forwards 200 OK response to IMS_B forwards 200 OK response to IMS_A to leave the 1-to-many Chat 131A User B leaves the 1-to-many Chat	119A		_										
121A NOTIFY IMS_B forwards NOTIFY to IBCF_B 122A NOTIFY IBCF_B forwards NOTIFY to IBCF_A 123A NOTIFY IBCF_A forwards NOTIFY to IBCF_A 124A NOTIFY IBCF_A forwards NOTIFY to IBCF_A 125A User B is notified that all other users have left the 1-to-many Chat 126A User B is notified that all other users have left the 1-to-many Chat 127A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 128A User B is notified that all other users have left the 1-to-many Chat 130A User B leaves the 1-to-many Chat 131A User B leaves the 1-to-many Chat	120A							←	-			NOTIFY	AS/IM_B sends NOTIFY to IMS _B to inform UE_B that User A has left
122A 123A 123A 124A 124A 124A 125A 125A 125A 125A 125A 126A 127A 127A 127A 128A 129A 129A 131A 131A IBCF_B forwards NOTIFY to UE_B IBCF_B forwards 200 OK response to IBCF_A IBCF_B forwards 200 OK response to IBCF_B IBCF_B forwards 200 OK response to AS/IM_B IBIA IBIA IBIA IBIA IBIA	121A						←	_				NOTIFY	IMS_B forwards NOTIFY to
123A Image: Constraint of the second sec	122A					←	_					NOTIFY	IBCF_B forwards NOTIFY to
124A NOTIFY IMS_A forwards NOTIFY to UE_B 125A User B is notified that all other users have left the 1-to-many Chat 126A 200 OK UE_B responds with 200 OK to IMS_A 127A 200 OK IBCF_A 128A 200 OK IBCF_A 129A 200 OK IBCF_B 130A 200 OK IBCF_B forwards 200 OK response to IBCF_B 131A User B leaves the 1-to-many Chat 132A BYE UE_B sends BYE to IMS_A to leave the 1-to-many Chat	123A				←							NOTIFY	IBCF_A forwards NOTIFY to
126A users have left the 1-to-many Chat 127A 200 OK UE_B responds with 200 OK to IMS_A 128A Image: Comparison of the system	124A									\rightarrow		NOTIFY	
126A 127A 127A 128A 128A 200 OK 129A 200 OK 130A 200 OK 131A 200 OK 132A Example 132A Example	125A										→		
127A 200 OK IMS_A forwards 200 OK response to IBCF_A 128A 200 OK IBCF_A forwards 200 OK response to IBCF_B 129A 200 OK IBCF_B forwards 200 OK response to IMS_B 130A 200 OK IMS_B forwards 200 OK response to IMS_B 131A User B leaves the 1-to-many Chat 132A BYE UE_B sends BYE to IMS_A to leave the 1-to-many Chat	126A				←				+	_		200 OK	UE_B responds with 200 OK to
128A 128A 200 OK IBCF_A forwards 200 OK response to IBCF_B 129A 130A 200 OK IBCF_B forwards 200 OK response to IMS_B 131A 200 OK IMS_B forwards 200 OK response to AS/IM_B 132A Empty display="block">BYE 132A Empty display="block">BYE	127A					→						200 OK	IMS_A forwards 200 OK response
129A 129A 130A 131A 131A 132A	128A						→					200 OK	
130A 130A ito IMS_B 131A ito IMS_B forwards 200 OK response to AS/IM_B 131A ito IMS_B forwards 200 OK response to AS/IM_B 132A ito IMS_B forwards 200 OK response to AS/IM_B	129A							\rightarrow				200 OK	to IBCF_B IBCF_B forwards 200 OK response
131A to AS/IM_B 132A C User B leaves the 1-to-many Chat BYE User be bends by to IMS_A to leave the 1-to-many Chat	130A								→				to IMS_B
132A BYE UE_B sends BYE to IMS_A to leave the 1-to-many Chat													to AS/IM_B
leave the 1-to-many Chat										ì		DVE	
133A BYE IMS_A forwards BYE to IBCF_A					<								leave the 1-to-many Chat
	133A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A

Step					Direc	tion					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	UE	U s		
	е	Ā	Ι	S	С	С	S	Ι	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
134A						→					BYE	IBCF_A forwards BYE to IBCF_B
135A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
136A								→			BYE	IMS_B forwards BYE to AS/IM_B
137A							←				200 OK	AS/IM_B sends 200 OK for BYE
138A						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
139A					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
140A				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
141A									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
142A										\rightarrow		User B is informed that the 1-to-
104B									←	-		many Chat has ended User B leaves the 1-to-many Chat
105B				←	-		-		-		BYE	UE_B sends BYE to IMS_A to leave the 1-to-many Chat
106B					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
107B						→					BYE	IBCF_A forwards BYE to IBCF_B
108B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
109B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
110B							←				200 OK	AS/IM_B sends 200 OK for BYE
111B						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
112B					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
113B				←	-						200 OK	IBCF_A forwards 200 OK response to IMS_A
114B									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
115B										\rightarrow		User B is informed that he has left the 1-to-many Chat
116B							←	-			NOTIFY	AS/IM_B sends NOTIFY to IMS_B to inform UE_A that User B has left
117B						←					NOTIFY	the 1-to-many Chat IMS_B forwards NOTIFY to
118B					←	_					NOTIFY	IBCF_B IBCF_B forwards NOTIFY to
119B				←	_						NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
120B			←	_							NOTIFY	IMS_A IMS_A forwards NOTIFY to
121B				\rightarrow							NOTIFY	AS/IM_A AS/IM_A returns, possibly
122B		←									BYE	modified, NOTIFY to IMS_A IMS_A forwards NOTIFY to UE_A
123B	←	_										User A is informed that User B has
124B				→							200 OK	left the 1-to-many Chat UE_A sends 200 OK for NOTIFY

Step					Direct	tion						Message	Comment
	U	U E	A S/	I M	I B	l B	I M	A S/	UE	l	-		
	s e	Ā	5/ 	S	Č	Ċ	S	3/	B		S Ə		
	r		M	Ă	F	F	В	M			r		
	Α		Α		Α	В		В		E	3		
125B			←									200 OK	IMS_A forwards 200 OK response to AS/IM_A
126B				→								200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
127B					→							200 OK	IMS_A forwards 200 OK response to IBCF_A
128B						→						200 OK	IBCF_A forwards 200 OK response to IBCF_B
129B							\rightarrow					200 OK	IBCF_B forwards 200 OK response to IMS_B
130B								\rightarrow				200 OK	IMS_B forwards 200 OK response to AS/IM_B
131B		→											User A leaves the 1-to-many Chat
132B		_	_	→								BYE	UE_A sends BYE to IMS_A to
1005													leave the 1-to-many Chat
133B												BYE	IMS_A forwards BYE to AS/IM_A
134B				\rightarrow								BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
135B					→							BYE	IMS_A forwards BYE to IBCF_A
136B						→						BYE	IBCF_A forwards BYE to IBCF_B
137B							\rightarrow					BYE	IBCF_B forwards BYE to IMS_B
138B								\rightarrow				BYE	IMS_B forwards BYE to AS/IM_B
139B							\leftarrow	_				200 OK	AS/IM_B sends 200 OK for BYE
140B						←						200 OK	IMS_B forwards 200 OK response to IBCF_B
141B					<u>(</u>							200 OK	IBCF_B forwards 200 OK response to IBCF_A
142B				←	_							200 OK	IBCF_A forwards 200 OK response to IMS_A
143B			←									200 OK	IMS_A forwards 200 OK response to AS/IM_A
144B				→								200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
145B		←										200 OK	IMS_A forwards 200 OK response to UE_A
146B	K												User A is informed that the 1-to- many Chat has ended

4.4.3.5 Switching to 1-to-many chat

Following there are the expected common call flow sequences for switching from 1-to-1 chat to 1-to-many chat. It is assumed that in 1-to-many chat there should be additional user C, but for the clarity in the call flow sequences only two users presented since the message flow for UE_C is the same as for the other users.

4.4.3.5.1 UC_RCS_7_I: SIP message flow for switching to 1-to-many chat with CF_INT_AS

NOTE 1: In this Use Case AS/IM_A server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_A should have configured IM CONFERENCE FACTORY URI.

NOTE 2: According to RCS-e specification [11] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_INT_AS
1	User A selects User B in the phone address book and sends him an initial message	UC_RCS_4_I Step 1
2	User B is informed of incoming message	UC_RCS_4_I Step 20
3	User A is informed that initial message was delivered to user B	UC_RCS_4_I Step 39
4	User B reads the initial message from user A and opens the 1-to-1 chat	UC_RCS_4_I Step 49
5	Users perform 1-to-1 chatting	UC_RCS_4_I Step 68
6	User A initiates a 1-to-many Chat with User B and User C by sending initial	Step 2
	message	
7	User A is informed that the 1-to-many Chat is established	Step 9
8	User B is informed of incoming invitation from User A to join the 1-to-many Chat	Step 26
9	User B reads the initial message and accepts the 1-to-many Chat invitation	Step 27
10	User A is notified with list of 1-to-many Chat participants	Step 66
11	User B is notified with list of 1-to-many Chat participants	Step 90
12	Users perform messaging in the 1-to-many Chat	Step 98
13A	User B leaves the 1-to-many Chat	UC_RCS_6_I Step 80A
13B	User A leaves the 1-to-many Chat	UC_RCS_6_I Step 80B
14A	User B is informed that he has left the 1-to-many Chat	UC_RCS_6_I Step 95A
14B	User A is informed that he has left the 1-to-many Chat	UC_RCS_6_I Step 85B
15A	User A is notified that all other users have left the 1-to-many Chat	UC_RCS_6_I Step 98A
15B	User B is notified that all other users have left the 1-to-many Chat	UC_RCS_6_I Step 93B
16A	User A leaves the 1-to-many Chat	UC_RCS_6_I Step 101A
16B	User B leaves the 1-to-many Chat	UC_RCS_6_I Step 101B
17A	User A is informed that the 1-to-many Chat has ended	UC_RCS_6_I Step 106A
17B	User B is informed that the 1-to-many Chat has ended	UC_RCS_6_I Step 116B

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s r B		
1												Follow UC_RCS_4_I (1-68)
2		→										User A initiates a 1-to-many Chat with User B and User C by sending initial message
3											INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM CONFERENCE FACTORY URI, MIME resource-list body including invited IM Users, the first SDP offer indicating all specific data for MSRP connection set up and the identity of User B with Session- Replaces header
4		←									100 Trying	IMS_A responds with a 100 Trying provisional response
5			←								INVITE	IMS_A forwards INVITE to AS/IM_A
6				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
7				→							200 OK	AS/IM_A responds INVITE with 200 OK response with IM session Identity allocated for the current 1- to-many Chat to indicate that the session has been accepted and SDP to inform A-side with specific data for MSRP connection set up

Step					Direct	tion					Message	Comment
	U	U	A	I	l	I	I	A A	U E	U		
	s e	E A	S/	M S	B C	B C	M S	S/	B	s e		
	r		M	Ă	F	F	В	M	_	r		
	Α		Α		Α	В		В		В		
8		<u> </u>									200 OK	IMS_A forwards 200 OK response to AS/IM_A
9	←	_										User A is informed that the 1-to-
												many Chat is established
10				→							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
11			←								ACK	IMS_A forwards ACK to AS/IM_A
12											INVITE	AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated
				→								for the current 1-to-many Chat), IM
												address of the Inviting IM UE (UE_A) and Session-Replaces
												header with the original 1-to-1
												session identity
13			←								100 Trying	IMS_A responds with a 100 Trying
14											INVITE	provisional response IMS_A forwards INVITE to IBCF_A
					1							
15				K							100 Trying	IBCF_A responds with a 100 Trying provisional response
16						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
17					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
18							→				INVITE	IBCF_B forwards INVITE to IMS_B
19						(100 Trying	IMS_B responds with a 100 Trying
												provisional response
20								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
21							←	_			100 Trying	AS/IM_B responds with a 100 Trying provisional response
22							←				INVITE	AS/IM_B returns, possibly
23											100 Trying	modified, INVITE to IMS_B IMS_B responds with a 100 Trying
20								→			loo nying	provisional response
24									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
25							←	_	_		100 Trying	UE_B optionally responds with a
26												100 Trying provisional response User B is informed of incoming
20									_	\rightarrow		invitation from User A to join the 1-
												to-many Chat
27												User B reads the initial message
												and accepts the 1-to-many Chat invitation
28											200 OK	UE_B responds INVITE with 200
												OK response with SDP to indicate
							←		_			that the session has been accepted
												and inform AS/IM_A with specific
29											200 OK	data for MSRP connection set up IMS_B forwards 200 OK response
2.5								→				to AS/IM_B
30											200 OK	AS/IM_B returns, possibly
							←	-				modified, 200 OK response to
31											200 OK	IMS_B IMS_B forwards 200 OK response
						←	-				200 OK	to IBCF_B
32					<u> </u>						200 OK	IBCF_B forwards 200 OK response
1		1										to IBCF_A

Step					Direct	tion					Message	Comment
	U	U E	A S/	I M	I B	l B	I M	A S/	U E	U		
	s e	E A	5/ 	S	В С	В С	S	5/ 	B	s e		
	r		M	Ă	F	F	В	M	_	r		
	Α		Α		Α	В		В		В		
33				←	-						200 OK	IBCF_A forwards 200 OK response to IMS_A
34			,								200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
35				\rightarrow							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
36					→						АСК	IMS_A forwards ACK to IBCF_A
37					·	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
38							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
39								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
40							←				ACK	AS/IM_B returns, possibly
41									_		ACK	modified, ACK to IMS_B IMS_B forwards ACK to UE_B
42											BYE	UE B releases the 1-to-1 IM
							<u>(</u>					session with BYE
43								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
44							←	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
45						←					BYE	IMS_B forwards BYE to IBCF_B
46					←	_					BYE	IBCF_B forwards BYE to IBCF_A
47				←	_						BYE	IBCF_A forwards BYE to IMS_A
48			←								BYE	IMS_A forwards BYE to AS/IM_A
49				→							BYE	AS/IM_A returns, possibly
50		/									BYE	modified, BYE to IMS_A IMS_A forwards BYE to UE_A
51											200 OK	UE_A sends 200 OK for BYE
52			,	,							200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
53											200 OK	AS/IM_A returns, possibly
				_								modified, 200 OK response to IMS_A
54					_						200 OK	IMS_A forwards 200 OK response
					1						000.01/	to IBCF_A
55						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
56											200 OK	IBCF_B forwards 200 OK response
							~					to IMS_B
57								\rightarrow			200 OK	IMS_B forwards 200 OK response
58											200 OK	to AS/IM_B AS/IM_B returns, possibly
							←					modified, 200 OK response to
- 50											000.01/	IMS_B
59								_	\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
60											SUBSCRIBE	UE_A subscribes to the conference
				~								event package
61			←								SUBSCRIBE	IMS_A forwards SUBCRIBE to AS/IM_A
62											200 OK	AS/IM_A AS/IM_A sends 200 OK for
				\rightarrow								SUBSCRIBE
63		←									200 OK	IMS_A forwards 200 OK response
64											NOTIFY	to UE_A AS/IM_A sends NOTIFY to UE_A
04				\rightarrow								with list of 1-to-many Chat
												participants
65		←									NOTIFY	IMS_A forwards the NOTIFY to
66												UE_A User A is notified with list of 1-to-
00	K											many Chat participants

Step					Direct	tion					Message	Comment
	U	U	Α	I	Ι	Ι	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	EB	s e		
	r	~	M	A	F	F	B	M		r		
	Α		Α		Α	В		В		В		
67				→							200 OK	UE_A responds with 200 OK to
68											200 OK	IMS_A IMS_A forwards the 200 OK
00			←								200 01	response to AS/IM_A
69							(SUBSCRIBE	UE_B subscribes to the conference
70							Ì					event package
70								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
71											SUBSCRIBE	AS/IM_B returns, possibly
												modified, SUBSCRIBE to IMS_B
72						←	_				SUBSCRIBE	IMS_B forwards SUBSCRIBE to
73											SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to
10					←	_					CODOCIADE	IBCF_A
74				←	_						SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
75											SUBSCRIBE	IMS_A IMS_A forwards SUBSCRIBE to
10			←								CODOCINDE	AS/IM_A
76				→							200 OK	AS/IM_A sends 200 OK for
77											200 OK	SUBSCRIBE IMS_A forwards 200 OK response
"					→						200 01	to IBCF_A
78						\rightarrow					200 OK	IBCF_A forwards 200 OK response
79						1					200 OK	to IBCF_B
79							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
80											200 OK	IMS_B forwards 200 OK response
01								1				to AS/IM_B
81							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to
							Ì					IMS_B
82									→		200 OK	IMS_B forwards 200 OK response
83											NOTIFY	to UE_B AS/IM_A sends NOTIFY to UE_B
00				\rightarrow								with list of 1-to-many Chat
												participants
84					→						NOTIFY	IMS_A forwards BYE to IBCF_A
85						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
86							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B IMS_B forwards BYE to AS/IM_B
87 88								\rightarrow			NOTIFY NOTIFY	AS/IM_B returns, possibly
00							←					modified, BYE to IMS_B
89									\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
90												User B is notified with list of 1-to-
04											200.01/	many Chat participants
91 92							(200 OK 200 OK	UE_B sends 200 OK for NOTIFY IMS_B forwards 200 OK response
92								\rightarrow			200 0K	to AS/IM_B
93											200 OK	AS/IM_B returns, possibly
							←	\neg				modified, 200 OK response to
94											200 OK	IMS_B IMS_B forwards 200 OK response
34						←						to IBCF_B
95					<u> </u>						200 OK	IBCF_B forwards 200 OK response
00											200.01	to IBCF_A
96				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
97			<u> </u>								200 OK	IMS_A forwards 200 OK response
				7								to AS/IM_A

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
98	←		-*-									Users perform messaging in the 1- to-many Chat(see clause 5.3.2.1 Chat 1 to many via MSRP - Interworking and use 5.4.2 test description)
99		ľ										Continue UC_RCS_6_I (80A-116B)

4.4.3.5.2 UC_RCS_7_R: SIP message flow for switching to 1-to-many chat with CF_ROAM_AS (OPTIONAL)

- NOTE 1: In this Use Case AS/IM_B server assumes to be a Controlling IM server for 1-to-many Chat sessions and UE_B should have configured IM CONFERENCE FACTORY URI.
- NOTE 2: According to RCS-e specification [11] delivery and display notifications in 1-to-many Chat are not required and therefore not presented in this Use Case CFW.

Step	Action	CF_ROAM_AS
1	User B selects User A in the phone address book and sends him an initial message	UC_RCS_4_R Step 1
2	User A is informed of incoming message	UC_RCS_4_R Step 26
3	User B is informed that initial message was delivered to user A	UC_RCS_4_R Step 51
4	User A reads the initial message from user B and opens the 1-to-1 chat	UC_RCS_4_R Step 64
5	Users perform 1-to-1 chatting	UC_RCS_4_R Step 89
6	User B initiates a 1-to-many Chat with User A and User C by sending initial message	Step 2
7	User B is informed that the 1-to-many Chat is established	Step 18
8	User A is informed of incoming invitation from User B to join the 1-to-many Chat	Step 38
9	User A reads the initial message and accepts the 1-to-many Chat invitation	Step 39
10	User B is notified with list of 1-to-many Chat participants	Step 93
11	User A is notified with list of 1-to-many Chat participants	Step 120
12	Users perform messaging in the 1-to-many Chat	Step 128
13A	User A leaves the 1-to-many Chat	UC_RCS_6_R Step 104A
13B	User B leaves the 1-to-many Chat	UC_RCS_6_R Step 104B
14A	User A is informed that he has left the 1-to-many Chat	UC_RCS_6_R Step 119A
14B	User B is informed that he has left the 1-to-many Chat	UC_RCS_6_R Step 115B
15A	User B is notified that all other users have left the 1-to-many Chat	UC_RCS_6_R Step 125A
15B	User A is notified that all other users have left the 1-to-many Chat	UC_RCS_6_R Step 123B
16A	User B leaves the 1-to-many Chat	UC_RCS_6_R Step 131A
16B	User A leaves the 1-to-many Chat	UC_RCS_6_R Step 131B
17A	User B is informed that the 1-to-many Chat has ended	UC_RCS_6_R Step 142A
17B	User A is informed that the 1-to-many Chat has ended	UC_RCS_6_R Step 146B

Step					Direc	tion					Message	Comment
	U	U	Α	Ι	I	Ι	Ι	Α	-	U		
	S	E	S/	м	B	В	м	S/	E	S		
	e r	Α	I M	S A	C F	C F	S B	M	В	e r		
	A		A	~	A	В	В	B		B		
1										Ī		Follow UC_RCS_4_R (1-89)
2					ľ							User B initiates a 1-to-many Chat
									←			with User A and User C by sending
												initial message
3											INVITE	UE_B sends INVITE to IMS_A with Request-URI set to IM
												CONFERENCE FACTORY URI,
												MIME resource-list body including
				←	_				_			invited IM Users, the first SDP offer
												indicating all specific data for
												MSRP connection set up and the identity of User A with Session-
												Replaces header
4			1								100 Trying	IMS_A responds with a 100 Trying
												provisional response
5					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
6				←	_						100 Trying	IBCF_A responds with a 100 Trying
7											INVITE	provisional response IBCF_A forwards INVITE to
'						\rightarrow						IBCF_B
8					/						100 Trying	IBCF_B responds with a 100 Trying
												provisional response
9							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
10						←	_				100 Trying	IMS_B responds with a 100 Trying provisional response
11											INVITE	IMS_B forwards INVITE to
								→				AS/IM_B
12							<u> </u>				100 Trying	AS/IM_B responds with a 100
13							ľ				200 OK	Trying provisional response AS/IM_B responds INVITE with
13											200 OK	200 OK response with IM session
												Identity allocated for the current 1-
							←	_				to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific data for MSRP connection set up
14											200 OK	IMS_B forwards 200 OK response
						(to IBCF_B
15					←						200 OK	IBCF_B forwards 200 OK response
16											200 OK	to IBCF_A IBCF_A forwards 200 OK response
10				←	-						200 OK	to IMS_A
17											200 OK	IMS_A forwards 200 OK response
									7			to UE_B
18									;	>		User B is informed that the 1-to-
19											ACK	many Chat is established UE_B acknowledges the receipt of
13				←					-	1		200 OK for INVITE
20			1		→						ACK	IMS_A forwards ACK to IBCF_A
21						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
22							→				ACK	IBCF_B forwards ACK to IMS_B
23								→		1	ACK	IMS_B forwards ACK to AS/IM_B
24											INVITE	AS/IM_B sends INVITE to UE_A
												with IM session identity (allocated for the current 1-to-many Chat), IM
							←			1		address of the Inviting IM UE
			1									(UE_B) and Session-Replaces
			1									header with the original 1-to-1
			I	I		I	I		1	1		session identity

Step					Direct	ion					Message	Comment
	U	U	Α	Ι		1	I	Α	U	U	J	
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	M	В	e r		
	Å		A	~	A	В	Б	B		B		
25		1								Ī	100 Trying	IMS_B responds with a 100 Trying
												provisional response
26						<						IMS_B forwards INVITE to IBCF_B
27							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying provisional response
28					/						INVITE	IBCF_B forwards INVITE to
												IBCF_A
29						→					100 Trying	IBCF_A responds with a 100 Trying
30				(INVITE	provisional response IBCF_A forwards INVITE to IMS_A
31				,							100 Trying	IMS_A responds with a 100 Trying
					7							provisional response
32			←								INVITE	IMS_A forwards INVITE to
33											100 Trying	AS/IM_A AS/IM_A responds with a 100
00				\rightarrow							roo rrying	Trying provisional response
34				\rightarrow							INVITE	AS/IM_A returns, possibly
35											100 Trying	modified, INVITE to IMS_A IMS_A responds with a 100 Trying
55			←								roo rrying	provisional response
36		←									INVITE	IMS_A forwards INVITE to UE_A
37				→							100 Trying	UE_A optionally responds with a
38												100 Trying provisional response User A is informed of incoming
00	←	-										invitation from user B to join the 1-
												to-many Chat
39												User A reads the initial message
		1										and accepts the 1-to-many Chat invitation
40											200 OK	UE_A responds INVITE with 200
												OK response with SDP to indicate
				→								that the session has been accepted and inform AS/IM_A with specific
												data for MSRP connection set up
41			<u> </u>								200 OK	IMS_A forwards 200 OK response
40			ľ								200.01	to AS/IM_A
42				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to
												IMS_A
43					→						200 OK	IMS_A forwards 200 OK response
44											200 OK	to IBCF_A IBCF_A forwards 200 OK response
						→					200 010	to IBCF_B
45							→				200 OK	IBCF_B forwards 200 OK response
46											200 OK	to IMS_B IMS_B forwards 200 OK response
40								\rightarrow			200 01	to AS/IM_B
47							_				ACK	AS/IM_B acknowledges the receipt
40							$\sum_{i=1}^{n}$					of 200 OK for INVITE
48						(ACK ACK	IMS_B forwards ACK to IBCF_B IBCF_B forwards ACK to IBCF_A
49 50											ACK	IBCF_B forwards ACK to IBCF_A
50			<u> </u>								ACK	IMS_A forwards ACK to AS/IM_A
52			Ì								ACK	AS/IM_A returns, possibly
				\rightarrow								modified, ACK to IMS_A
53		←									ACK	IMS_A forwards ACK to UE_A
54				\rightarrow							BYE	UE_A releases the 1-to-1 IM session with BYE
55			←	_							BYE	IMS_A forwards BYE to AS/IM_A
	I	1	I	I	I	I	I	1	I	1	<u> </u>	

Step					Direct	on					Message	Comment
	U	U	Α	I	I	Ι	I	Α	U	U	j .	
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	M	В	e r		
	Ă		A	^	A	в	5	B		B		
56											BYE	AS/IM_A returns, possibly
				1							5)/5	modified, BYE to IMS_A
57 58					*						BYE BYE	IMS_A forwards BYE to IBCF_A
58 59						7	`				BYE	IBCF_A forwards BYE to IBCF_B IBCF_B forwards BYE to IMS_B
60											BYE	IMS_B forwards BYE to AS/IM_B
61								1			BYE	AS/IM_B returns, possibly
							-					modified, BYE to IMS_B
62						←	_				BYE	IMS_B forwards BYE to IBCF_B
63					←	-					BYE	IBCF_B forwards BYE to IBCF_A
64				←							BYE	IBCF_A forwards BYE to IMS_A
65									\rightarrow		BYE	IMS_A forwards BYE to UE_B
66 67				<							200 OK 200 OK	UE_B sends 200 OK for BYE IMS_A forwards 200 OK response
07					*							to IBCF_A
68						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
69							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
70								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
71							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to
72						←					200 OK	IMS_B IMS_B forwards 200 OK response to IBCF_B
73						_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
74				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
75			(-							200 OK	IMS_A forwards 200 OK response to AS/IM_A
76				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
77		←									200 OK	IMS_A forwards 200 OK response to UE_A
78				←							SUBSCRIBE	UE_B subscribes to the conference event package
79)						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
80						>					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
81							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
82							\vdash	\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
83							←				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
84						←	-				200 OK	IMS_B forwards 200 OK response to IBCF_B
85					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
86				←	-						200 OK	IBCF_A forwards 200 OK response to IMS_A
87							+		\longrightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
88							←				NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants

Step					Direc	tion					Message	Comment
	U	U	A	I	1	Ι	I	A	U	U		
	s e	E A	S/	M S	В С	B C	M S	S/	E B	s e		
	r		M	Ă	F	F	В	M		r		
89	A		A		A	В		В		B	NOTIFY	IMS_B forwards NOTIFY to
03						←						IBCF_B
90					←						NOTIFY	IBCF_B forwards NOTIFY to
91											NOTIFY	IBCF_A IBCF A forwards NOTIFY to
				(IMS_A
92 93									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B User B is notified with list of 1-to-
93									_	\rightarrow		many Chat participants
94				←							200 OK	UE_B responds with 200 OK to
95											200 OK	IMS_A IMS_A forwards 200 OK response
					\rightarrow							to IBCF_A
96						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
97											200 OK	IBCF_B forwards 200 OK response
98							1				200 OK	to IMS_B IMS_B forwards 200 OK response
90								\rightarrow			200 OK	to AS/IM_B
99				\rightarrow							SUBSCRIBE	UE_A subscribes to the conference
100											SUBSCRIBE	event package IMS_A forwards SUBSCRIBE to
			<i>(</i>									AS/IM_A
101				\rightarrow							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
102					_						SUBSCRIBE	IMS_A forwards SUBSCRIBE to
103					-						SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to
						\rightarrow						IBCF_B
104							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
105											SUBSCRIBE	IMS_B forwards SUBSCRIBE to
100											200 OK	AS/IM_B
106							←	_			200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
107						←					200 OK	IMS_B forwards 200 OK response
108											200 OK	to IBCF_B IBCF_B forwards 200 OK response
					<							to IBCF_A
109				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
110											200 OK	IMS_A forwards 200 OK response
111			Ì								200 OK	to AS/IM_A AS/IM_A returns, possibly
				→							200 OK	modified, 200 OK response to
110											200 OK	IMS_A IMS_A forwards 200 OK response
112		←		\neg							200 UK	to UE_A
113											NOTIFY	AS/IM_B sends NOTIFY to UE_A
							(with list of 1-to-many Chat participants
114						←	-				NOTIFY	IMS_B forwards BYE to IBCF_B
115					←	\neg					NOTIFY	IBCF_B forwards BYE to IBCF_A
116 117				_							NOTIFY NOTIFY	IBCF_A forwards BYE to IMS_A IMS_A forwards BYE to AS/IM_A
118											NOTIFY	AS/IM_A returns, possibly
				_								modified, BYE to IMS_A
119 120		K									NOTIFY	IMS_A forwards BYE to UE_A User A is notified with list of 1-to-
120	K											many Chat participants

Step					Direc	tion					Message	Comment
	U s e r	U E A	A S/ I M	I M S A	I B C F	I B C F	I M S B	A S/ I M	U E B	U s e r		
	A		A		A	В		В		В		
121				\uparrow							200 OK	UE_A sends 200 OK for NOTIFY
122			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
123				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
124					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
125						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
126							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
127								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
128												Users perform messaging in the 1- to-many Chat (see clause 5.3.2.2
										7		Chat 1 to many via MSRP - Roaming and use 5.4.2 test description)
129												Continue ÚC_RCS_6_R (104A- 146B)

4.4.4 RCS-e services during a call

RCS-e services during a call include two main types of Content sharing:

- Video sharing;
- Pictures sharing.

The main difference between these types of Content sharing is in the media session protocol. In case of Video sharing users establish RTP media session and for the Pictures sharing purposes MSRP connection is used. Since the call flow sequences for Pictures and Video sharing are similar in the Use Cases below there is only a common procedure of Content sharing described.

In the case of sharing a file (picture) during a call follow Use Cases provided in the File transfer service clause 4.4.5.

For Use Cases of Content sharing during a call it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to RCS-e services during a call such as video and pictures sharing.

4.4.4.1 Content sharing

4.4.4.1.1 UC_RCS_8_I: SIP message flow for Content sharing with CF_INT_CALL

Step	Action	CF_INT_CALL
1A	User A establishes voice call with user B	Step 1A
1B	User B establishes voice call with user A	Step 1B
2	User A requests to share content with user B	Step 2
3	User B is requested to accept to share content	Step 13
4	User B accepts to share content with user A	Step 19
5	User A is informed that request has been answered	Step 25
6	Content sharing starts	Step 31
7A	User A ends content sharing	Step 32A

Step	Action	CF_INT_CALL
8A	User B is informed that content sharing has terminated	Step 38A
9A	User A is informed that content sharing has terminated	Step 44A
10A	User A initiates voice call termination	Step 55A
7B	User B ends content sharing	Step 32B
8B	User A is informed that content sharing has terminated	Step 38B
9B	User B is informed that content sharing has terminated	Step 44B
10B	User B initiates voice call termination	Step 55B

The expected call flow sequence is:

Step				Di	rectio	on					Message	Comment
	U	U	I			I	I	U	ι	J		
	s	E	M	B		В	М	E	S			
	e r	Α	S A	C F		C F	S B	В	e r			
	Å		~			в	D		Ė			
1A	\leftarrow			_1					\rightarrow	-		User A establishes a voice call to user B
1B	←						_		\rightarrow			User B establishes a voice call to user A
2		→										User A requests to share content with user B
3		-	\rightarrow			1					INVITE	UE_A sends INVITE to share content with user B
4		/				Ì	Î				100 Trying	IMS_A responds with a 100 Trying provisional
												response
5				\rightarrow		ļ	ļ				INVITE	IMS_A forwards INVITE to IBCF_A
6			←								100 Trying	IBCF_A responds with a 100 Trying provisional
7											INVITE	response IBCF_A forwards INVITE to IBCF_B
8					,	ŀ					100 Trying	IBCF_B responds with a 100 Trying provisional
					(100 Hynng	response
9	ĺ						→				INVITE	IBCF_B forwards INVITE to IMS_B
10						<i>(</i>					100 Trying	IMS_B responds with a 100 Trying provisional
						[ļ					response
11								\rightarrow			INVITE	IMS_B forwards INVITE to UE_B
12							←				100 Trying	UE_B responds with a 100 Trying provisional response
13									_			User B is requested to accept to share content
14						Ì	1.		ĺ		180 Ringing	UE_B responds to initial INVITE with 180
							<i>—</i>					Ringing to indicate that it has started alerting
15						<u> </u>					180 Ringing	IMS_B forwards 180 Ringing response to
						Ì						IBCF_B
16					(180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17			←								180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18		←									180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19								←	_			User B accepts to share content
20							←				200 OK	UE_B responds INVITE with 200 OK to indicate
04						,	Ē					that the request has been accepted
21 22					<i></i>						200 OK 200 OK	IMS_B forwards 200 OK response to IBCF_B IBCF_B forwards 200 OK response to IBCF_A
			,								200 OK 200 OK	IBCF_A forwards 200 OK response to IBCF_A
23 24		4									200 OK 200 OK	IMS_A forwards 200 OK response to UE_A
24											200 01	User A is informed that request has been
25	←											answered
26			→								АСК	UE_A acknowledges the receipt of 200 OK for INVITE
27											ACK	INVITE IMS_A forwards ACK to IBCF_A
28				ŕ	\longrightarrow						ACK	IBCF_A forwards ACK to IBCF_B
29							→				ACK	IBCF_B forwards ACK to IMS_B
30								\rightarrow			ACK	IMS_B forwards ACK to UE_B
31								-				Content sharing starts (see clause 5.3.3 Image
									\rightarrow			data via MSRP and use 5.4.3 test description)

Step				Di	rectio	on				Message	Comment
0.00	U	U	I	1		I		U	U	lineeeuge	
	S	E	M	B				E	S		
	e r	Α	S A	C F			S B	В	e r		
	Å		~	A		B			B		
32A											User A ends content sharing
33A			\rightarrow							BYE	UE_A releases the call with BYE
34A				\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
35A				-	\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
36A						\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
37A							\rightarrow			BYE	IMS_B forwards BYE to UE_B
38A									*		User B is informed that content sharing has ended
39A							<u> </u>			200 OK	UE_B sends 200 OK for BYE
40A						<u> </u>	Ì			200 OK	IMS_B forwards 200 OK response to IBCF_B
41A				é	<u> </u>					200 OK	IBCF_B forwards 200 OK response to IBCF_A
42A			←							200 OK	IBCF_A forwards 200 OK response to IMS_A
43A		←								200 OK	IMS_A forwards the 200 OK response to UE_A
44A											User A is informed that content sharing has
4= :										ODTIONIC	
45A							/			OPTIONS	UE_B sends OPTIONS to IMS_B to verify availability of video sharing capability of the
											UE_A
46A						k				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
47A				é	(OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
48A			←	_						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
49A		←								OPTIONS	IMS_A forwards OPTIONS to UE_A
50A			\rightarrow							200 OK	UE_A responds 200 OK to IMS_A with updated
51A				、						200 OK	capabilities IMS_A forwards 200 OK to IBCF_A
51A 52A										200 OK 200 OK	IBCF_A forwards 200 OK to IBCF_A
53A					/	,				200 OK	IBCF_B forwards 200 OK to IMS_B
54A							>			200 OK	IMS B forwards 200 OK to UE B
55A	←						-		*		Voice call termination initiated by user A
32B											User B ends content sharing
33B							←			BYE	UE_B releases the call with BYE
34B						(Ì			BYE	IMS_B forwards BYE to IBCF_B
35B				¢	(BYE	IBCF_B forwards BYE to IBCF_A
36B			←	_						BYE	IBCF_A forwards BYE to IMS_A
37B		←	_							BYE	IMS_A forwards BYE to UE_A
38B	₩										User A is informed that content sharing has
39B										200 OK	ended UE A sends 200 OK for BYE
40B			1	\rightarrow						200 OK 200 OK	IMS_A forwards 200 OK response to IBCF_A
41B				ĺ.	>					200 OK	IBCF_A forwards 200 OK response to IBCF_B
42B					,	$ \longrightarrow $		ļ		200 OK	IBCF_B forwards 200 OK response to IMS_B
43B							\rightarrow			200 OK	IMS_B forwards the 200 OK response to UE_B
44B											User B is informed that content sharing has
									1		ended
45										OPTIONS	UE_A sends OPTIONS to IMS_A to verify
											availability of video sharing capability of the UE_B
46				\rightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
47					\longrightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
48						\mapsto				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
49							\rightarrow			OPTIONS	IMS_B forwards OPTIONS to UE_B
50							<u> </u>			200 OK	UE_B responds with 200 OK to IMS_B with
F 4						,	`			200 01	updated capabilities
51					,	K	1			200 OK	IMS_B forwards 200 OK to IBCF_B
52 53				(<u> </u>					200 OK 200 OK	IBCF_B forwards 200 OK to IBCF_A IBCF_A forwards 200 OK to IMS_A
55			· · ·					l	I	200 OK	

Step				Dire	ction				Message	Comment
	U s e r A	UEA	I M S A	I B C F A	I B C F B	I M S B	UEB	U s r B		
54 55B		(200 OK	IMS_A forwards 200 OK to UE_A Voice call termination initiated by user B

4.4.4.1.2 UC_RCS_8_R: SIP message flow for Content sharing with CF_ROAM_CALL (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering).

Step	Action	CF_ROAM_CALL
1A	User A establishes voice call with user B	Step 1A
1B	User B establishes voice call with user A	Step 1B
2	User A requests to share content with user B	Step 2
3	User B is requested to accept to share content	Step 19
4	User B accepts to share content with user A	Step 28
5	User A is informed that request has been answered	Step 37
6	Content sharing starts	Step 46
7A	User A ends content sharing	Step 47A
8A	User B is informed that content sharing has terminated	Step 56A
9A	User A is informed that content sharing has terminated	Step 65A
10A	User A initiates voice call termination	Step 82A
7B	User B ends content sharing	Step 47B
8B	User A is informed that content sharing has terminated	Step 56B
9B	User B is informed that content sharing has terminated	Step 65B
10B	User B initiates voice call termination	Step 82B

The expected call flow sequence is:

Step				Dire	ction				Message	Comment
	U s e r	U E A	I M S A	I B C F	I B C F B	I M S B	U E B	U s e r B		
1A	A				_ Б			A B		User A sets up a voice call to user B
1B				_ _				1		User B sets up a voice call to user A
2		\rightarrow						1		User A requests to share content with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share content with user B
4		←							100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←	_					100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
8				\leftarrow	_				100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11					←				INVITE	IMS_B forwards INVITE to IBCF_B
12						\rightarrow			100 Trying	IBCF_B responds with a 100 Trying provisional response
13				←	-				INVITE	IBCF_B forwards INVITE to IBCF_A
14					\rightarrow				100 Trying	IBCF_A responds with a 100 Trying provisional response
15			\leftarrow	-				1	INVITE	IBCF_A forwards INVITE to IMS_A

Step				Dire	ection				Message	Comment
	U	U	Ι		-	I	U	U		
	S	E A	M	B C	B C	M S	E B	S		
	e r	A	S A	F	F	B	P	e r		
	Å			Å	B			B		
16								T	100 Trying	IMS_A responds with a 100 Trying provisional
				7						response
17				- -			\rightarrow		INVITE	IMS_A forwards INVITE to UE_B
18			←	_ _					100 Trying	UE_B responds with a 100 Trying provisional
10										
19 20									180 Ringing	User B is requested to accept to share content UE_B responds to initial INVITE with 180
20			\leftarrow	- -					160 Kinging	Ringing to indicate that it has started alerting
21									180 Ringing	IMS_A forwards 180 Ringing response to
				→					5 5 5	IBCF_A
22									180 Ringing	IBCF_A forwards 180 Ringing response to
					<i>'</i>					IBCF_B
23						\rightarrow			180 Ringing	IBCF_B forwards 180 Ringing response to
24									180 Ringing	IMS_B IMS_B forwards the 180 Ringing response to
27					←				100 Kinging	IBCF_B
25				,					180 Ringing	IBCF_B forwards 180 Ringing response to
				É						IBCF_A
26			←	_					180 Ringing	IBCF_A forwards 180 Ringing response to
07										IMS_A
27		(_	180 Ringing	IMS_A forwards 180 Ringing response to UE_A
28							E C		200.01/	User B accepts to share content
29			←	- -	— —				200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
30				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
31				´ _	\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
32									200 OK	IBCF_B forwards 200 OK response to IMS_B
33					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
34				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
35			←	_ [200 OK	IBCF_A forwards 200 OK response to IMS_A
36		←								IMS_A forwards 200 OK response to UE_A
27										User A is informed that request has been
37										answered
38			→						ACK	UE_A acknowledges the receipt of 200 OK for
									1.01/	INVITE
39				→					ACK	IMS_A forwards ACK to IBCF_A
40				-	\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
41						\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
42					(ACK	IMS_B forwards ACK to IBCF_B
43				⊢ ⊢					ACK	IBCF_B forwards ACK to IBCF_A
44			\leftarrow	-					ACK	IBCF_A forwards ACK to IMS_A
45		_	_				\rightarrow		ACK	IMS_A forwards ACK to UE_B
46	_	_	_	- -				\rightarrow		Content sharing starts (see clause 5.3.3 Image data via MSRP and use 5.4.3 test description)
47A				_ _				_		User A ends content sharing
48A	Ì							1	BYE	UE_A releases the call with BYE
40A 49A			1	_→					BYE	IMS_A forwards BYE to IBCF_A
49A 50A				´					BYE	IBCF_A forwards BYE to IBCF_B
50A 51A					Ĺ				BYE	IBCF_B forwards BYE to IMS_B
52A					<u> </u>				BYE	IMS_B forwards BYE to IBCF_B
53A				4	` `				BYE	IBCF_B forwards BYE to IBCF_A
53A 54A			4	_ `					BYE	IBCF_A forwards BYE to IMS_A
54A 55A				_ _					BYE	IMS_A forwards BYE to UE_B
							1			User B is informed that content sharing has
56A							_	\rightarrow		ended
57A			←	_ _					200 OK	UE_B sends 200 OK for BYE
		1							200 OK	IMS_A forwards 200 OK response to IBCF_A

Step				Dir	ection				Message	Comment
	U	U	I	I	I	Ι	U	U		
	S	E	M	B	B	M	E	S		
	e r	Α	S	C F	C F	S B	В	e r		
	Å			A	В			B		
59A				-	\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60A						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61A					←				200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A				÷					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63A			←						200 OK	IBCF_A forwards 200 OK response to IMS_A
64A		←							200 OK	IMS_A forwards the 200 OK response to UE_A
65A										Content sharing terminates
66A									OPTIONS	UE_B sends OPTIONS to IMS_A to verify
			←	_						availability of video sharing capability of the
67A									OPTIONS	UE_A IMS_A forwards OPTIONS to IBCF_A
68A				_					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A									OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70A									OPTIONS	IMS_B forwards OPTIONS to IBCF_B
70A 71A				4	[OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72A			<u>(</u>	_`					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73A		←	`						OPTIONS	IMS_A forwards OPTIONS to UE_A
74A		Ì							200 OK	UE_A responds 200 OK to IMS_A with updated
			\rightarrow							capabilities
75A				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76A				-	\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77A						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78A					←	_			200 OK	IMS_B forwards 200 OK to IBCF_B
79A				÷					200 OK	IBCF_B forwards 200 OK to IBCF_A
80A			\leftarrow	_					200 OK	IBCF_A forwards 200 OK to IMS_A
81A			_				\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B
82A										User A terminates voice call
47B			,						BYE	User B ends content sharing UE B releases the call with BYE
48B 49B									BYE	IMS_A forwards BYE to IBCF_A
49B 50B				7	``				BYE	IBCF A forwards BYE to IBCF B
50B 51B						`			BYE	IBCF_B forwards BYE to IMS_B
51B 52B					/				BYE	IMS_B forwards BYE to IBCF_B
52B				4	`				BYE	IBCF_B forwards BYE to IBCF_A
54B			<i>(</i>	_ `					BYE	IBCF_A forwards BYE to IMS_A
55B		<i>(</i>	`						BYE	IMS_A forwards BYE to UE_A
		,								User A is informed that content sharing has
56B	F									ended
57B			\rightarrow						200 OK	UE_A sends 200 OK for BYE
58B			—	\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
59B				-	\longrightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B					←	-			200 OK	IMS_B forwards 200 OK response to IBCF_B
62B				÷					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			\leftarrow	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
64B			_				\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
65B	(\rightarrow		Content sharing terminates
66B									OPTIONS	UE_A sends OPTIONS to IMS_A to verify
			\rightarrow							availability of video sharing capability of the
67B									OPTIONS	UE_B IMS_A forwards OPTIONS to IBCF_A
68B				~ _					OPTIONS	IBCF_A forwards OPTIONS to IBCF_A
69B									OPTIONS	IBCF_B forwards OPTIONS to IBCF_B
70B						7			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
70B 71B				4		7			OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
מוז		I	I	7		I	I			IDUI _D IUIWAIUS UF HUINS IU IDUF_A

Step				Dire	ction					Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	3	U s e r B		
72B			\leftarrow	_						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B							\rightarrow			OPTIONS	IMS_A forwards OPTIONS to UE_B
74B			←	_ -	_					200 OK	UE_B responds with 200 OK to IMS_A with updated capabilities
75B				\rightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
76B					\rightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
77B						\rightarrow				200 OK	IBCF_B forwards 200 OK to IMS_B
78B					←					200 OK	IMS_B forwards 200 OK to IBCF_B
79B				←	-					200 OK	IBCF_B forwards 200 OK to IBCF_A
80B			\leftarrow	-						200 OK	IBCF_A forwards 200 OK to IMS_A
81B		←	_							200 OK	IMS_A forwards 200 OK to UE_A
82B				_			_		*		User B terminates voice call

4.4.5 File transfer service

Following there are the expected common call flow sequences for a standalone File transfer service.

For all Use Cases it is assumed that UEs registered on the corresponding IMS networks and they have already performed capability discovery procedures. In particular, users subscribed to standalone File transfer service.

NOTE: According to RCS-e specification [11] File Transfer is a standalone service. In the mean time sharing picture during a call from the 'Media gallery' of the user terminal or file transfer during 1-to-1 chat ultimately equals to File transfer service procedures from a call flow sequences point of view.

4.4.5.1 UC_RCS_9_I: SIP message flow for File transfer with CF_INT_AS

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_INT_AS
1	User A initiates a file transfer to user B	Step 1
2	User B is informed of incoming file and accepts the transfer	Step 20
3	User A is informed that file transfer has been accepted by user B	Step 30
4	File transfer starts	Step 40
5	File transfer completed (size checked)	Step 41
6	User B is informed that file transfer completed	Step 51
7	User A is informed that file transfer completed	Step 61

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1		→										User A initiates a file transfer to user B
2				→							INVITE	UE_A sends INVITE to IMS_A to establish a session with the SDP offer indicating all specific data for a MSRP connection set up
3		←		_							100 Trying	IMS_A responds with a 100 Trying provisional response
4			←								INVITE	IMS_A forwards INVITE to AS/IM_A

The expected call flow sequence is:

Step					Direc	tion					Message	Comment
	U	U	Α	Ι	Ι	I	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	I M	В	e r		
	Å		A	^	A	В	D	B		B		
5										Ī	100 Trying	AS/IM_A responds with a 100
				1								Trying provisional response
6				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7											100 Trying	INVITE to INS_A IMS_A responds with a 100 Trying
•			(loo liying	provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9				←	_						100 Trying	IBCF_A responds with a 100 Trying
10						``					INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
10											100 Trying	IBCF_A lowards invite to iBCF_B
					←						100 Hying	provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13						<u> </u>					100 Trying	IMS_B responds with a 100 Trying
14						-					INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
14											100 Trying	AS/IM_B responds with a 100
15							←	_			100 Hying	Trying provisional response
16							_				INVITE	AS/IM_B returns, possibly modified,
47							Ì				100 T :	INVITE to IMS_B
17								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							/				100 Trying	UE_B optionally responds with a
												100 Trying provisional response
20									_	\rightarrow		User B is informed of incoming file
21											200 OK	and accepts the transfer UE_B responds INVITE with 200
											200 011	OK response with SDP to indicate
							←					that the session has been accepted
												and inform A-side with specific data for a MSRP connection set up
22											200 OK	IMS_B forwards 200 OK response
												to AS/IM_B
23							←				200 OK	AS/IM_B returns, possibly modified,
24											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
27						←					200 010	to IBCF_B
25					<u> </u>						200 OK	IBCF_B forwards 200 OK response
20					Ì						200 OK	to IBCF_A IBCF_A forwards 200 OK response
26				←	_						200 OK	to IMS A
27			/								200 OK	IMS_A forwards 200 OK response
												to AS/IM_A
28				→							200 OK	AS/IM_A returns, possibly modified,
29		_									200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
		←										to UE_A
30	€											User A is informed that file transfer
01											ACK	has been accepted by user B UE_A acknowledges the receipt of
31				\rightarrow							AUN	200 OK for INVITE
32			←								ACK	IMS_A forwards ACK to AS/IM_A
33				\rightarrow							ACK	AS/IM_A returns, possibly modified,
0.4				1								ACK to IMS_A
34 35					→						ACK ACK	IMS_A forwards ACK to IBCF_A IBCF_A forwards ACK to IBCF_B
35 36											ACK	IBCF_A forwards ACK to IBCF_B IBCF_B forwards ACK to IMS_B
36											ACK	IBCF_B forwards ACK to IMS_B IMS_B forwards ACK to AS/IM_B
57		I	I	I	I	1		1	I	I		

Step					Direc	ction					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
38							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
39									\rightarrow		ACK	IMS_B forwards ACK to UE_B
40	~									→		File transfer starts (see clause 5.3.3 Image data via MSRP and use 5.4.3 test description)
41												File transfer completed (size checked)
42				→							BYE	UE_A releases the file transfer session with BYE
43			←	_							BYE	IMS_A forwards BYE to AS/IM_A
44				→							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
45					→						BYE	IMS_A forwards BYE to IBCF_A
46						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
47							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
48								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
49							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
50									\rightarrow		BYE	IMS_B forwards BYE to UE_B
51										→		User B is informed that file transfer completed
52							←		_		200 OK	UE_B sends 200 OK for BYE
53								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
54							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
55						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
56					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
57				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
58			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
59				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
60		←									200 OK	IMS_A forwards 200 OK response to UE_A
61	—											User A is informed that file transfer completed

4.4.5.2 UC_RCS_9_R: SIP message flow for File transfer with CF_ROAM_AS (OPTIONAL)

The test sequence typically associated with this use case is as follows (CFW step numbers refer the call flow step numbering):

Step	Action	CF_ROAM_AS
1	User B initiates a file transfer to user A	Step 1
2	User A is informed of incoming file and accepts the transfer	Step 26
3	User B is informed that file transfer has been accepted by user A	Step 39
4	File transfer starts	Step 52
5	File transfer completed (size checked)	Step 53
6	User A is informed that file transfer completed	Step 66
7	User B is informed that file transfer completed	Step 79

The expected call flow sequence is:

Step					Directi	on					Message	Comment
	U	U	Α	I	I	I	I	Α		U		
	S	E	S/	м	В	B	M	S/	_	S		
	e r	Α	I M	S A	C F	C F	S B	I M		e r		
	Å		A	$\hat{}$	A	B		В		B		
1									<			User B initiates a file transfer to user A
2											INVITE	UE_B sends INVITE to IMS_A to
				←					_			establish a new session with the
												SDP offer indicating all specific data for a new MSRP connection set up
3									→		100 Trying	IMS_A responds with a 100 Trying provisional response
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5				/							100 Trying	IBCF_A responds with a 100 Trying
												provisional response
6 7						*					INVITE	IBCF_A forwards INVITE to IBCF_B
1					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
8							*				INVITE	IBCF_B forwards INVITE to IMS_B
9						←					100 Trying	IMS_B responds with a 100 Trying
10						ľ					INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
11								7			100 Trying	AS/IM_B responds with a 100 Trying
							←				, ,	provisional response
12							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
13								÷			100 Trying	IMS_B responds with a 100 Trying provisional response
14						<u> </u>					INVITE	IMS_B forwards INVITE to IBCF_B
15											100 Trying	BCF_B responds with a 100 Trying
1.5												provisional response
16 17					<						INVITE 100 Trying	IBCF_B forwards INVITE to IBCF_A IBCF_A responds with a 100 Trying
17						*					TOO TTYING	provisional response
18				←	_						INVITE	IBCF_A forwards INVITE to IMS_A
19					\rightarrow						100 Trying	IMS_A responds with a 100 Trying
20			,								INVITE	provisional response IMS_A forwards INVITE to AS/IM_A
20											100 Trying	AS/IM_A responds with a 100 Trying
				\rightarrow								provisional response
22				\rightarrow							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23			,								100 Trying	IMS_A responds with a 100 Trying
												provisional response
24 25		<i>(</i>									INVITE 100 Trying	IMS_A forwards INVITE to UE_A
20				\rightarrow							Too Trying	UE_A optionally responds with a 100 Trying provisional response
26	<u> </u>											User A is informed of incoming file and accepts the transfer
27											200 OK	UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				\rightarrow		1						the session has been accepted and inform B-side with specific data for a
						1						new MSRP connection set up
28			<u> </u>			1	1				200 OK	IMS_A forwards 200 OK response to
											200 01/	AS/IM_A
29				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
30					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
31											200 OK	IBCF_A forwards 200 OK response
						1						to IBCF_B

Step						Direc	tion					Message	Comment
	U		0	Α	1				A	U	υ		
	s e		E A	S/	M S	B C	B C	M S	S/	EB	s e		
	r	1		Ň	A	F	F	B	M	B	r		
	Â			A		A	В		В		В		
32								\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
33									\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
34								←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35												200 OK	IMS_B forwards 200 OK response to IBCF_B
36						←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
37					—							200 OK	IBCF_A forwards 200 OK response
38										\rightarrow		200 OK	to IMS_A IMS_A forwards 200 OK response to
39													UE_B User B is informed that file transfer
40					←							ACK	has been accepted by user B UE_B acknowledges the receipt of
41						→						ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
42							\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43								\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44									\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
45								←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
46							←					ACK	IMS_B forwards ACK to IBCF_B
47						←						ACK	IBCF_B forwards ACK to IBCF_A
48					←							ACK	IBCF_A forwards ACK to IMS_A
49				←								ACK	IMS_A forwards ACK to AS/IM_A
50					\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51		ŧ	(ACK	IMS_A forwards ACK to UE_A
52	←										\rightarrow		File transfer starts (see clause 5.3.3 Image data via MSRP and use 5.4.3 test description)
53													File transfer completed (size checked)
54					←		_			_		BYE	UE_B releases the file transfer session with BYE
55						\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56							\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57								\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58									\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59								←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60							←					BYE	IMS_B forwards BYE to IBCF_B
61						←	_					BYE	IBCF_B forwards BYE to IBCF_A
62					←	_						BYE	IBCF_A forwards BYE to IMS_A
63				←	_							BYE	IMS_A forwards BYE to AS/IM_A
64					\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
65		×	(_	_							BYE	IMS_A forwards BYE to UE_A
66													User A is informed that file transfer completed
67		-			→							200 OK	UE_A sends 200 OK for BYE
68				←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
69					\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
	I	I		I	1	I	1	I	I	I	1		200 OK TESPONSE TO INIS_A

Step					Direc	tion					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	Ā	З, Т	S	č	Č	S	- 0, I	В	e		
	r		м	A	F	F	В	м		r		
	Α		Α		Α	В		В		В		
70					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
71						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
72							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
73								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
74							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
75						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
76					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
77				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
78									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
79										→		User B is informed that file transfer completed

4.5 Test Descriptions

This clause introduces interoperability test descriptions (TDs) which realize one or more IMS NNI test purposes of TS 186 011-1 [2].

Each TD is defined on the basis of one of the generic use cases forms presented in the previous clause and in TS 186 011-2 [9], clause 4.4. Each test sequence step in a TD includes also a reference to a specific call flow step of the generic use case. Call flow steps which are associated with the test body are repeated after each TD and include any modifications necessary to adapt the generic use case. In the adapted call flow steps that are associated with user interactions are shown shaded and steps which have pass criteria are associated with are shown in bold.

Note that the expected test sequence may only show the Call Flow that affects the test.

In the tabulations which follow, all references are to TS 124 229 [1].

4.5.1 Capability discovery

4.5.1.1 Capability discover through OPTIONS - User B is Registered - interworking

	Interoperability	Test Description						
Identifier:	TD_IMS_CAP_0001							
Summary:	IMS network supports capability discovery and OPTIONS messages exchange between two users in their home network can be performed. User B must be Registered.							
Configuration:	CF_INT_AS							
SUT	IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1						
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1						
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65						
Use Case ref.:		· · · · · · · · · · · · · · · · · · ·						

		Interoperability Test Description
Pre-test		of IMS_A and of IMS B is configured according to table 1
conditions:		A and UE_B have IP bearers established to their respective IMS networks as
		S 186 011-2 [9], clause 4.2.1
		A is registered in IMS_A optionally using userPRES according to table 1
		B is registered in IMS_B optionally using userPRES according to table 1
		A is optionally configured to receive notifications with watcher information
		A is configured to contact AS_A
		B is configured to contact AS_B
		B is optionally configured for reactive authorization
	 IMS_ 	A is within the trust domain of IMS_B
	 IMS_ 	A not configured for topology hiding
Test Seguenee	Stop	
Test Sequence:	Step	Licer A selects a contact of user P in the phone address book
	1	User A selects a contact of user B in the phone address book User B is informed about user A capabilities
	2	
	3	User A is informed about user B capabilities
Conformance	Check	
Criteria:	1	TP_IMS_5097_13 in CFW step 6 (PUBLISH):
		ensure that {
		when {IMS_B receives a PUBLISH from IMS_A }
		then { IMS_B sends the PUBLISH to AS_B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector_header
		containing an orig-ioi parameter indicating IMS_A and
		not containing a term-ioi parameter and
		containing access-network-charging-info }
	2	TP_IMS_5108_07 in CFW step 18 (SUBSCRIBE):
		ensure that {
		when { IMS_A receives a SUBSCRIBE addressed to UE_B }
		then { IMS_B sends the SUBSCRIBE to AS_B
		containing a topmost Route header
		indicating the SIP URI of AS_B
		containing a Route header
		indicating the S-CSCF_SIP URI of IMS_B
		containing a P-Charging-Vector_header
		containing an orig-ioi parameter indicating IMS_A and
		not containing a term-ioi parameter}
		}
	3	// TP_IMS_5115_08 in CFW step 19 (200 OK):
	3	ensure that {
		when { AS_B sends a 200 response to UE_A }
		then { IMS_B receives the 200 response
		containing a P-Charging-Vector_header
		containing a r cinarging vector_neader containing a orig-ioi_parameter indicating IMS_A and
		containing a term-ioi_parameter indicating IMS_B }

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	UEB	U s r B		
1										User A selects a contact of user B in the phone address book
2			→						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
5					·	\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
7										User B is informed about user A capabilities
8						←	_		200 OK	UE_B responds with 200 OK to IMS_B with Contact header containing user B capabilities (RCS-e services Tags)
9					←	_			200 OK	IMS_B forwards 200 OK to IBCF_B
10				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
11			\leftarrow	_					200 OK	IBCF_A forwards 200 OK to IMS_A
12		←							200 OK	IMS_A forwards 200 OK to UE_A
13										User A is informed about user B capabilities

4.5.1.2 Capability discover through OPTIONS - User B is Registered - roaming

	Interoperabi	lity Test Description
Identifier:	TD_IMS_CAP_0002	
Summary:	IMS network supports capab between one user in its home performed. User B must be F	ility discovery and OPTIONS messages exchange e network and another in visited network can be Registered.
Configuration:	CF_ROAM_AS (OPTIONAL)	0
SUT	IMS_B	
References	Test Purpose	Specification Reference
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65
Use Case ref.:	UC_RCS_1_R	
Pre-test conditions:		IS B is configured according to table 1 P bearers established to their respective IMS networks as
	UE_A is registered in IM	S_A optionally using userPRES according to table 1 S_B via IMS A optionally using userPRES according to
	 IMS_A is configured to a 	
	 IMS_B is configured to of 	
		gured for reactive authorization
	IMS_A is within the trust	
	 IMS_A not configured for 	r topology hiding
Test Sequence:	Step	
rest bequence.		contact of user B in the phone address book
		about user A capabilities
		about user B capabilities
Conformance	Check	
Criteria:		in CFW step 6 (PUBLISH):
	ensure that {	
		ceives a PUBLISH from IMS_A }
		nds the PUBLISH to AS_B
	containing	g a Route_header
		ng the SIP_URI of AS_B and
		a P-Charging-Function-Addresses_header and
		a P-Charging-Vector_header
		ng an orig-ioi parameter indicating IMS_A and
		aining a term-ioi parameter and
	contain	ng access-network-charging-info }
	}	

	Interoperability Test Description
2	TP_IMS_5108_07 in CFW step 18 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} }
3	TP_IMS_5115_08 in CFW step 19 (200 OK): ensure that { when { AS_B sends a 200 response to UE_A } then { IMS_B receives the 200 response containing a P-Charging-Vector_header containing a orig-ioi_parameter indicating IMS_A and containing a term-ioi_parameter indicating IMS_B } }

Step				Dire	ction				Message	Comment
	U s e r A	UEA	I M S A	I B C F A	I B C F B	I M S B	U E B	U s r B		
1										User A selects a contact of user B in the phone address book
2									OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6					←				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
7				\leftarrow	-				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
8			←	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
9				-	_		\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
10										User B is informed about user A capabilities
11			←	_	-				200 OK	UE_B responds with 200 OK to IMS_A with Contact header containing user B capabilities (RCS-e services Tags)
12				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
13					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
14						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
15					←	_			200 OK	IMS_B forwards 200 OK to IBCF_B
16				\leftarrow	-				200 OK	IBCF_B forwards 200 OK to IBCF_A
17			\leftarrow	_					200 OK	IBCF_A forwards 200 OK to IMS_A
18		←							200 OK	IMS_A forwards 200 OK to UE_A
19	\vdash									User A is informed about user B capabilities

		y Test Description
Identifier:	TD_IMS_CAP_0003	
Summary:		/ discovery and OPTIONS messages exchange
		e network can be performed. User B must be not
-	Registered.	
Configuration:	CF_INT_AS	
SUT	IMS_B	
References	Test Purpose	Specification Reference
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65
Use Case ref.:	UC_RCS_1_I	
Pre-test	HSS of IMS_A and of IMS	B is configured according to table 1
conditions:		earers established to their respective IMS networks as
contantiono.	per TS 186 011-2 [9], claus	
	 UE_B is not registered in INS_ 	A optionally using userPRES according to table 1
		red to receive notifications with watcher information
	 UE_A is optionally configure IMS_A is configured to cor 	
	IMS_B is configured to con AS_B is applicable configured.	
		ed for reactive authorization
	IMS_A is within the trust do IMS_A pat configured for to	
	IMS_A not configured for te	opology hiding
Test Sequence:	Step	
rest sequence.		tact of user B in the phone address book
		nat user B is offline (not registered)
Conformance	Check	
Criteria:		CFW step 6 (PUBLISH):
	ensure that {	
		ves a PUBLISH from IMS_A }
		s the PUBLISH to AS_B
		Route_header
		the SIP_URI of AS_B and
	containing a	P-Charging-Function-Addresses_header and
		P-Charging-Vector_header
	containing	an orig-ioi parameter indicating IMS_A and
		ning a term-ioi parameter and
	containing	access-network-charging-info }
	}	
	2 TP_IMS_5108_07 in	CFW step 18 (SUBSCRIBE):
	ensure that {	
	· -	<pre>/es a SUBSCRIBE addressed to UE_B }</pre>
		s the SUBSCRIBE to AS_B
		topmost Route header
		he SIP URI of AS_B
		Route header
		he S-CSCF_SIP URI of IMS_B
		P-Charging-Vector_header
		an orig-ioi parameter indicating IMS_A and
	not contai	ning a term-ioi parameter}
) 1	
	3 TP IMS 5115 08 in	CFW step 19 (200 OK):
	ensure that {	O(W) Siep 13 (200 OK).
		a 200 response to UE_A }
		ves the 200 response
		P-Charging-Vector_header
		a orig-ioi_parameter indicating IMS_A and
		a term-ioi_parameter indicating IMS_B }
	}	····
	}	

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s r B		
1				•						User A selects a contact of user B in the phone address book
2			→						OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6									480 Not Registered/ 408 Request Timeout	IMS_B responds OPTIONS with 480 Not Registered/408 Request Timeout to IBCF_B
7				←	_				480 Not Registered/ 408 Request Timeout	IBCF_B forwards 480 Not Registered/408 Request Timeout response to IBCF_A
8			←	_					480 Not Registered/ 408 Request Timeout	IBCF_A forwards 480 Not Registered/408 Request Timeout response to IMS_A
9		←							480 Not Registered/ 408 Request Timeout	IMS_A forwards 480 Not Registered/408 Request Timeout response to UE_A
10										User A is informed that user B is offline (not registered)

4.5.1.4 Capability discover through OPTIONS - User B is not provisioned for RCS-e - interworking

	Interoperability	Test Description
Identifier:	TD_IMS_CAP_0004	
Summary:	IMS network supports capability	discovery and OPTIONS messages exchange
	between two users in their home	e network can be performed. User B must be not
	provisioned for RCS-e services.	
Configuration:	CF_INT_AS	
SUT	IMS_B	
References	Test Purpose	Specification Reference
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65
Use Case ref.:	UC_RCS_1_I	
Pre-test	HSS of IMS_A and of IMS E	3 is configured according to table 1
conditions:	UE_A and UE_B have IP be	earers established to their respective IMS networks as
	per TS 186 011-2 [9], claus	e 4.2.1
	 UE_A is registered in IMS 	A optionally using userPRES according to table 1
	 UE_B is registered in IMS_ 	B without RCS-e capabilities
	 UE_A is optionally configure 	ed to receive notifications with watcher information
	 IMS_A is configured to configured. 	act AS_A
	 IMS_B is configured to configured. 	act AS_B
	 AS_B is optionally configure 	ed for reactive authorization
	 IMS_A is within the trust do 	
	 IMS_A not configured for to 	

		Interoperability Test Description
Test Sequence:	Step	
	1	User A selects a contact of user B in the phone address book
	2	User A is informed that user B is not provisioned for RCS-e
• •	- · ·	
Conformance	Check	
Criteria:	1	TP_IMS_5097_13 in CFW step 6 (PUBLISH):
		ensure that {
		when {IMS_B receives a PUBLISH from IMS_A } then { IMS_B sends the PUBLISH to AS_B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector_header
		containing an orig-ioi parameter indicating IMS_A and
		not containing a term-ioi parameter and
		containing access-network-charging-info }
		}
	2	TP_IMS_5108_07 in CFW step 18 (SUBSCRIBE):
		ensure that {
		when { IMS_A receives a SUBSCRIBE addressed to UE_B }
		then { IMS_B sends the SUBSCRIBE to AS_B
		containing a topmost Route header
		indicating the SIP URI of AS_B
		containing a Route header
		indicating the S-CSCF_SIP URI of IMS_B
		containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and
		not containing a term-ioi parameter
		}
	3	TP_IMS_5115_08 in CFW step 19 (200 OK):
		ensure that {
		when { AS_B sends a 200 response to UE_A }
		then { IMS_B receives the 200 response
		containing a P-Charging-Vector_header
		containing a orig-ioi_parameter indicating IMS_A and
		containing a term-ioi_parameter indicating IMS_B }
		}

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1										User A selects a contact of user B in the phone address book
2									OPTIONS	UE_A sends OPTIONS to IMS_A with Accept- contact header containing user A capabilities (RCS-e services Tags)
3				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
4					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
5						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
6					(404 Not Found	IMS_B responds OPTIONS with 404 Not Found to IBCF_B
7				\leftarrow	_				404 Not Found	IBCF_B forwards 404 Not Found response to IBCF_A
8			\leftarrow	-					404 Not Found	IBCF_A forwards 404 Not Found response to IMS_A
9		←							404 Not Found	IMS_A forwards 404 Not Found response to UE_A
10										User A is informed that user B is not provisioned for RCS-e

4.5.2 Social Presence

4.5.2.1 Watcher subscription for presence event notification in visited network

	-	Interoperability Test Description
Identifier:	TD_IMS_PI	RES_0001
Summary:		k supports properly presence service when a watcher subscribes to
		formation for a presentity that it's located in a different network.
Configuration:		_AS (OPTIONAL)
SUT	IMS_B	
References	Test Purpo	
	TP_IMS_50	
	TP_IMS_51	
	TP_IMS_51	
Use Case ref.:	UC_RCS_2	2_R
	<u>.</u>	
Pre-test		f IMS_A and of IMS B is configured according to table 1
conditions:	 UE_A a 	and UE_B have IP bearers established to their respective IMS networks as
		186 011-2 [9], clause 4.2.1
	 UE_A i 	is registered in IMS_A optionally using userPRES according to table 1
	 UE_B i 	is registered in IMS_B via IMS_A optionally using userPRES according to
	table 1	
	 UE_A i 	is optionally configured to receive notifications with watcher information
	 UE_A i 	is authorized to see presence information of UE_B
	 IMS_A 	is configured to contact AS_A
	 IMS_B 	is configured to contact AS_B
	 AS_Bi 	s optionally configured for reactive authorization
		is within the trust domain of IMS_B
		not configured for topology hiding
Test Sequence:	Step	
		Jser B publishes presence and capability information
		Jser B is informed of its presence status update
	3 ไ	Jser A selects a contact of user B in the phone address book
	<u> </u>	
		Jser B is informed about user A capabilities
	4 l	
	4 l 5 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities
	4 l 5 l 6 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B
	4 l 5 l 6 l 7 S	Jser B is informed about user A capabilities Jser A is informed about user B capabilities
	4 l 5 l 6 l 7 s	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
	4 U 5 U 6 U 7 S 8 U	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own
	4 l 5 l 6 l 7 s 8 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
	4 L 5 L 6 L 7 S 8 L 9 L	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information
	4 l 5 l 7 s 8 l 9 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability
	4 l 5 l 7 5 8 l 9 l 10 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation
	4 l 5 l 7 5 8 l 9 l 10 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information
Conformance	4 l 5 l 7 5 8 l 9 l 10 l	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information
Conformance Criteria:	4 5 6 7 5 8 8 8 9 10 11 Check	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information TP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A }
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then { IMS_B sends the PUBLISH to AS_B
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information ISer A sees user B presence and capability information ISER A sees user B presence and capability information IFP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then { IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability nformation Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ISER A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ISER A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header containing a norig-ioi parameter indicating IMS_A and
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ISer A sees user B presence and capability information ISer A sees user B presence and capability information IFP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then { IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header containing a norig-ioi parameter indicating IMS_A and not containing a term-ioi parameter and
	4 5 7 5 8 9 10 11 Check 1 -	Jser B is informed about user A capabilities Jser A is informed about user B capabilities Jser A subscribes to presence and capability information from User B SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber Jser B receives an authorization request from User A to see its own presence and capability information Jser B authorizes user A to be informed of its own presence and capability information Jser A is informed of user B presence and capability information Jser A sees user B presence and capability information Jser A sees user B presence and capability information ISER A sees user B presence and capability information ITP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header containing a norig-ioi parameter indicating IMS_A and

	Interoperability Test Description
2	TP_IMS_5108_07 in CFW step 18 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} }
3	TP_IMS_5115_08 in CFW step 19 (200 OK): ensure that { when { AS_B sends a 200 response to UE_A } then { IMS_B receives the 200 response containing a P-Charging-Vector_header containing a orig-ioi_parameter indicating IMS_A and containing a term-ioi_parameter indicating IMS_B } }

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s r B		
1												User B publishes presence and capability information
2				←							PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements
3					\rightarrow						PUBLISH	IMS_A forwards the PUBLISH to IBCF_A
4						\rightarrow					PUBLISH	IBCF_A forwards the PUBLISH to IBCF_B
5							\rightarrow				PUBLISH	IBCF_B forwards the PUBLISH to IMS_B
6								→			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
7							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
8						←					200 OK	IMS_B forwards the 200 OK response to IBCF_B
9					←						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
10				←	_						200 OK	IBCF_A forwards the 200 OK response to IMS_A
11									→		200 OK	IMS_A forwards the 200 OK response to UE_B
12												User B is informed of its presence status update
13												User A selects a contact of user B in the phone address book
14											OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-contact header containing user A capabilities (RCS-e services Tags and the Tag indicating support of discovery via presence)
15											OPTIONS	IMS_A forwards OPTIONS to IBCF_A
16											OPTIONS	IBCF_A forwards OPTIONS to IBCF_B

Step					Direc	tion					Message	Comment
	U s	U E	A S	I M	I B	l B	I M	A S	U E	U s		
	e r	Ā	Ă	S A	C F	Ċ F	S B	В	В	e r		
	Å				A	В	В			В		
17											OPTIONS	IBCF_B forwards OPTIONS to IMS_B
18											OPTIONS	IMS_B forwards OPTIONS to IBCF_B
19											OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
20											OPTIONS	IBCF_A forwards OPTIONS to IMS_A
21											OPTIONS	IMS_A forwards OPTIONS to UE_B
22												User B is informed about user A capabilities
23											200 OK	UE_B responds with 200 OK to
												IMS_A with Contact header
												containing user B capabilities (RCS-e services Tags and the Tag
												indicating support via presence)
24											200 OK	IMS_A forwards 200 OK to IBCF_A
25											200 OK	IBCF_A forwards 200 OK to IBCF_B
26											200 OK	IBCF_B forwards 200 OK to IMS_B
27											200 OK	IMS_B forwards 200 OK to IBCF_B
28											200 OK	IBCF_B forwards 200 OK to IBCF_A
29											200 OK	IBCF_A forwards 200 OK to IMS_A
30											200 OK	IMS_A forwards 200 OK to UE_A
31												User A is informed about user B capabilities
32						ĺ						User A subscribes to presence and capability information from User B
33											SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "User B
				\rightarrow								presence" event with expiry time of 0 to IMS_A
34					→						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
35						\rightarrow					SUBSCRIBE	to IBCF_A IBCF_A forwards the SUBSCRIBE
36							\rightarrow				SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
37								_			SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
38											200 OK	to IMS_B AS (PS) IMS_B AS responds with a 200 OK
39											200 OK	to IMS_B IMS_B forwards the 200 OK
40						<u> </u>					200 OK	response to IBCF_B IBCF_B forwards the 200 OK
40					K						200 OK	response to IBCF_A IBCF_A forwards the 200 OK
				←								response to IMS_A
42		←									200 OK	IMS_A forwards the 200 OK response to UE_A
43						←		-			NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
44					<u> </u>	\neg					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A

Step					Direct	ion					Message	Comment
	U s	U E	A S	I M	l B	l B	I M	A S	U E	U s		
	e	Ā	A	S	С	С	S	В	В	e		
	r A			Α	F A	F B	В			r B		
45				└ <u> </u>							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
46		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
47				→							200 OK	UE_A responds with a 200 OK to IMS_A
48					→						200 OK	IMS_A forwards the 200 OK to IBCF_A
49						→					200 OK	IBCF_A forwards the 200 OK to IBCF_B
50								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
51												SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher
												information subscriber
52							←	_			NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the change to the watcher information
53						←					NOTIFY	subscriber IMS_B forwards the NOTIFY to
54					←						NOTIFY	IBCF_B IBCF_B forwards the NOTIFY to
55				←							NOTIFY	IBCF_A IBCF_A forwards the NOTIFY to
56									\rightarrow		NOTIFY	IMS_A IMS_A forwards the NOTIFY to UE_B
57				←							200 OK	UE_B responds with a 200 OK to IMS_A
58					→						200 OK	IMS_A forwards the 200 OK response to IBCF_A
59						→					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
60							→					IBCF_B forwards the 200 OK response to IMS_B
61								→			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
62												User B receives an authorization request from User A to see its own presence and capability information
63												User B authorizes user A to be informed of its own presence and capability information
64						< ──					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
65					←						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
66				←	-						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
68				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
69					→						200 OK	IMS_A forwards the 200 OK response to IBCF_A
70						→					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
71								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
72												User A is informed of user B presence and capability information
73							←	_			NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B that subscription has been authorized
74						←					NOTIFY	IMS_B forwards the NOTIFY to IBCF_B
75					←						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
76				←							NOTIFY	IBCF_A forwards the NOTIFY to
77									\rightarrow		NOTIFY	IMS_A forwards the NOTIFY to UE_B
78				←							200 OK	UE_B responds with a 200 OK to IMS_A
79					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
80						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
81							\rightarrow				200 OK	IBCF_B forwards the 200 OK response to IMS_B
82								\rightarrow			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
83												User A sees user B presence and capability information

4.5.2.2 Watcher subscription to presence event notification in home network

	Interoperability	^r Test Description										
Identifier:	TD_IMS_PRES_0002											
Summary:		presence service when a watcher subscribes to										
	presence information for a presentity that it's located in a home network.											
Configuration:	CF_INT_AS											
SUT	IMS_A											
References	Test Purpose	Specification Reference										
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1										
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶65										
Use Case ref.:	UC_RCS_2_I											
Pre-test conditions:	 UE_A and UE_B have IP be per TS 186 011-2 [9], clause UE_A is registered in IMS_/ UE_B is registered in IMS_I UE_A is optionally configure 	A optionally using userPRES according to table 1 B optionally using userPRES according to table 1 ed to receive notifications with watcher information presence information of UE_B fact AS_A eact AS_B ed for reactive authorization main of IMS_B										

		Interoperability Test Description								
Test Sequence:	Step									
	1	User B publishes presence and capability information including capabilities								
	2	User B is informed of its presence status update								
	3	User A selects a contact of user B in the phone address book								
	4	User B is informed about user A capabilities								
	5	User A is informed about user B capabilities								
	6	User A subscribes to presence and capability information from User B								
	7	SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the								
		change to the watcher information subscriber								
	8	User B receives an authorization request from User A to see its own								
		presence and capability information								
	9	User B authorizes user A to be informed of its own presence and capability								
		information								
	10	User A is informed of user B presence and capability information								
	11	User A sees user B presence and capability information								
Conformance Criteria:	Check									
	1	TP_IMS_5108_07 in CFW step 12 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} }								

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	I M N A	I B C F A	I B C F B	I ⊠S B	A S B	UEB	U s e r B		
1												User B publishes presence and capability information including capabilities
2							←		_		PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements and capabilities
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B
6 7												User B is informed of its presence status update User A selects a contact of user B in the phone address book

Step					Direct	tion					Message	Comment
	U	U	A	I	I	l	I	A	U	U		
	s e	E A	S A	M S	B C	B C	M S	S B	E B	s e		
	r			A	F	F	В			r		
8	A				A	В			- <u>r</u>	B	OPTIONS	UE_A sends OPTIONS to IMS_A
0												with Accept-contact header
				→								containing user A capabilities
												(RCS-e services Tags and the Tag indicating support of discovery via
												presence)
9					→						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
10						→					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
11							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
12									\rightarrow		OPTIONS	IMS_B forwards OPTIONS to
13												UE_B User B is informed about user A
												capabilities
14											200 OK	UE_B responds with 200 OK to IMS_B with Contact header
							,					containing user B capabilities
												(RCS-e services Tags and the Tag
												indicating support of discovery via presence)
15						←					200 OK	IMS_B forwards 200 OK to IBCF_B
16					←	_					200 OK	IBCF_B forwards 200 OK to IBCF_A
17				←	-						200 OK	IBCF_A forwards 200 OK to IMS_A
18		←		_							200 OK	IMS_A forwards 200 OK to UE_A
19												User A is informed about user B capabilities
20												User A subscribes to presence and capability information from User B
21											SUBSCRIBE	UE_A sends ANONYMOUS SUBSCRIBE for "User B
												presence" event with expiry time of 0 to IMS_A
22					→						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
23						→					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE to IBCF_B
24							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
25								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
26							←				200 OK	IMS_B AS responds with a 200 OK to IMS_B
27						←	_				200 OK	IMS_B forwards the 200 OK response to IBCF_B
28					←						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
29				←	4						200 OK	IBCF_A forwards the 200 OK response to IMS_A
30		←		_							200 OK	IMS_A forwards the 200 OK response to UE_A
31											NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
32					←						NOTIFY	IBCF_B IBCF_B forwards NOTIFY to IBCF_A
33											NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
					٦							IMS_A

Step					Direc	tion					Message	Comment
	U s	U E	A S	I M	I B	I B	I M	A S	UE	U s		
	e	Ā	A	S	C	C	S	B	B	e		
	r			Α	F	F B	В			r B		
34	A	←			A	в					NOTIFY	IMS_A forwards the NOTIFY to UE_A
35				→							200 OK	UE_A responds with a 200 OK to IMS_A
36					→						200 OK	IMS_A forwards the 200 OK to IBCF_A
37						→					200 OK	IBCF_A forwards the 200 OK to IBCF_B
38								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
39												SUBSCRIPTION triggers the AS to send a NOTIFY to UE_B indicating the change to the watcher information subscriber
40							←	_			NOTIFY	IMS_B AS sends NOTIFY to IMS_B to indicate UE_B the change to the watcher information subscriber
41									\rightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
42							←				200 OK	UE_B responds with a 200 OK to IMS_B
43								→			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
44												User B receives an authorization request from User A to see its own presence and capability information
45												User B authorizes user A to be informed of its own presence and capability information
46						←					NOTIFY	IMS_B AS sends NOTIFY to IBCF_B
47					←						NOTIFY	IBCF_B sends NOTIFY to IBCF_A
48				←	-						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
49		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
50				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
51					→						200 OK	IMS_A forwards the 200 OK response to IBCF_A
52						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
53								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
54												User A is informed of user B presence and capability
55							<				NOTIFY	information IMS_B AS sends NOTIFY to IMS_B to indicate UE_B that subscription has been authorized
56								_	\rightarrow		NOTIFY	IMS_B forwards the NOTIFY to UE_B
57							←				200 OK	UE_B responds with a 200 OK to IMS_B
58								\rightarrow			200 OK	IMS_B forwards the 200 OK response to IMS_B AS
59												User A sees user B presence and capability information

4.5.2.3 Unsuccessful watcher subscription to presence event notification in home network

		Interoperability	Test Description
Identifier:		PRES_0003	
Summary:	presence	information for a preser	esence service when a watcher subscribes to htity that it's located in a different network and does formed of his presence information.
Configuration:	CF_INT_/	AS	
SUT	IMS_B		
References	Test Purp TP_IMS_		Specification Reference TS 124 229 [1], clause 5.4.3.3 ¶1
Use Case ref.:	UC_RCS		l b d' "
Pre-test conditions:	 UE_/ per T UE_/ UE_/ USer IMS_ IMS_ AS_E IMS_ 	A and UE_B have IP be. S 186 011-2 [9], clause A is registered in IMS_A B is registered in IMS_B A is optionally configure A is not authorized to s A is configured to conta B is configured to conta	optionally using userPRES according to table 1 optionally using userPRES according to table 1 d to receive notifications with watcher information ee presence information of User B act AS_A act AS_B d for reactive authorization nain of IMS_B
Test Sequence:	Step 1 2 3 4 5 6 7	User B is informed of i User A selects a conta User B is informed abo User A is informed abo User A subscribes to p	
Conformance	Check		
Conformance Criteria:	Check		
	1	ensure that { when { IMS_A receive then { IMS_B sends a containing a to indicating the containing a R indicating the containing a P containing a	CFW step 6 (SUBSCRIBE): s a SUBSCRIBE addressed to UE_B } the SUBSCRIBE to AS_B pmost Route header a SIP URI of AS_B oute header a S-CSCF_SIP URI of IMS_B -Charging-Vector_header n orig-ioi parameter indicating IMS_A and ng a term-ioi parameter}

Step					Direct	ion					Message	Comment
	U	ШU	A S	I M	l B	l B	I M	A S	UE	U		
	s e	Ā	A	S	Ĉ	Ċ	S	B	B	s e		
	r			A	F	F	В			r		
1	A				<u>A</u>	В				B		Lloor D publishes pressnes and
1												User B publishes presence and capability information including
												capabilities
2											PUBLISH	UE_B sends PUBLISH with
							←	_				information for all commonly supported presence elements and
												capabilities
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to
4											200 OK	IMS_B AS (PS) IMS_B AS responds with a 200 OK
-							←				200 01	to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK
6								_	-			response to IBCF_B User B is informed of its presence
0												status update
7												User A selects a contact of user B
8											OPTIONS	in the phone address book UE_A sends OPTIONS to IMS_A
0					1							with Accept-contact header
				→	1							containing user A capabilities
				1								(RCS-e services Tags and the Tag
												indicating support of discovery via presence)
9											OPTIONS	IMS_A forwards OPTIONS to
10					1							
10						→					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
11							<u> </u>				OPTIONS	IBCF_B forwards OPTIONS to
10							1				OPTIONS	IMS_B IMS_B forwards OPTIONS to
12									\rightarrow		OPTIONS	UE_B
13												User B is informed about user A
1.4												capabilities
14											200 OK	UE_B responds with 200 OK to IMS_B with Contact header
							_					containing user B capabilities
							Ì					(RCS-e services Tags and the Tag
												indicating support of discovery via presence)
15						<u> </u>					200 OK	IMS_B forwards 200 OK to
16					1	Ĩ					200 OK	IBCF_B IBCF_B forwards 200 OK to
16					←	-					200 OK	IBCF_B forwards 200 OK to
17				<u> </u>	1						200 OK	IBCF_A forwards 200 OK to
10					1						200 OK	IMS_A
18 19											200 OK	IMS_A forwards 200 OK to UE_A User A is informed about user B
13												capabilities
20												User A subscribes to presence and
21											SUBSCRIBE	capability information from User B UE_A sends ANONYMOUS
21				,	1						SOBOOKIBE	SUBSCRIBE for "User B
												presence" event with expiry time of
22					1						SUBSCRIBE	0 to IMS_A IMS_A forwards the SUBSCRIBE
~~)						JUBSCRIDE	to IBCF_A
23						→					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
24						1						to IBCF_B
24							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
	I	I	I	I	1	I	I	I	I	1	L	

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
25								→			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
26							←				2xx or 4xx response	IMS_B AS responds with a 2xx or 4xx response to IMS_B
27						←					2xx or 4xx response	IMS_B forwards the 2xx or 4xx response to IBCF_B
28					←						2xx or 4xx response	IBCF_B forwards the 2xx or 4xx response to IBCF_A
29				←							2xx or 4xx response	IBCF_A forwards the 2xx or 4xx response to IMS_A
30		(2xx or 4xx response	IMS_A forwards the 2xx or 4xx response to UE_A
31												User A is not informed of user B presence information

Step					Direct	ion			-	-	Message	Comment
	U s e r	U E A	A S A	I M S A	I B C F	I B C F	I M S B	A S B	U E B	U s e r		
	Å				A	B	Ъ			B		
1												User B publishes presence and capability information including capabilities
2							←				PUBLISH	UE_B sends PUBLISH with information for all commonly supported presence elements and capabilities
3								→			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							←	_			200 OK	IMS_B AS responds with a 200 OK to IMS_B
5									\rightarrow		200 OK	IMS_B forwards the 200 OK response to IBCF_B
6												User B is informed of its presence status update
7												User A selects a contact of user B in the phone address book
8				→							OPTIONS	UE_A sends OPTIONS to IMS_A with Accept-contact header containing user A capabilities (RCS-e services Tags and the Tag indicating support of discovery via presence)
9					→						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
10						→					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
11							\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
12									\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
13												User B is informed about user A capabilities
14							€				200 OK	UE_B responds with 200 OK to IMS_B with Contact header containing user B capabilities (RCS-e services Tags and the Tag indicating support of discovery via presence)

Step					Dire	tion					Message	Comment
46.96	U	U	Α				I	Α	U	U	meeougo	
	S	Ē	S	M	B	B	M	S	Ē	s		
	е	Α	A	S	С	С	S	В	в	е		
	r			Α	F	F	В			r		
	Α				Α	В				в		
15						/					200 OK	IMS_B forwards 200 OK to
												IBCF_B
16					←						200 OK	IBCF_B forwards 200 OK to IBCF_A
17											200 OK	IBCF_A forwards 200 OK to
												IMS_A
18		←									200 OK	IMS_A forwards 200 OK to UE_A
19												User A is informed about user B capabilities
20												User A subscribes to presence and
												capability information from User B
21											SUBSCRIBE	UE_A sends ANONYMOUS
												SUBSCRIBE for "User B
												presence" event with expiry time of 0 to IMS_A
22					``						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
												to IBCF_A
23											SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
						1						to IBCF_B
24							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE
							-				0112002122	to IMS_B
25								\rightarrow			SUBSCRIBE	IMS_B forwards the SUBSCRIBE to IMS_B AS (PS)
26							<u> </u>				2xx or 4xx	IMS_B AS responds with a 2xx or
							N				response	4xx response to IMS_B
27						←					2xx or 4xx	IMS_B forwards the 2xx or 4xx
						`					response	response to IBCF_B
28		1			←						2xx or 4xx	IBCF_B forwards the 2xx or 4xx
		1			ľ						response	response to IBCF_A
29		1		←							2xx or 4xx	IBCF_A forwards the 2xx or 4xx
20											response	response to IMS_A
30		←									2xx or 4xx	IMS_A forwards the 2xx or 4xx
24											response	response to UE_A User A is not informed of user B
31												
												presence information

4.5.2.4 Watcher subscription to resource list in visited network

	Interoperability Te	st Description							
Identifier:	TD_IMS_PRES_0004								
Summary:	IMS network supports properly presence service when a watcher subscribes to a								
	resource list containing one or more presentities located in different networks.								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5097_13	TS 124 229 [1], clause 5.4.3.2 ¶1							
	TP_IMS_5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1							
	TP_IMS_5313_01	TS 124 229 [1], clause 5.4.6.1.3 ¶2							
Use Case ref.:	UC_RCS_3_R	· · · · · · · · · · · · · · · · · · ·							
Pre-test	HSS of IMS_A and of IMS B is	configured according to table 1							
conditions:	UE_A and UE_B have IP bears	ers established to their respective IMS networks as							
	per TS 186 011-2 [9], clause 4.	2.1							
	 UE_A is registered in IMS_A or 	otionally using userPRES according to table 1							
	 UE_B is registered in IMS_B vi 	a IMS_A optionally using userPRES according to							
	table 1								
	 UE_A is optionally configured to receive notifications with watcher information 								
	 IMS_A is configured to contact 								
	 IMS_B is configured to contact 								

		Interoperability Test Description
	• AS E	B is optionally configured for reactive authorization
		A is within the trust domain of IMS_B
		A not configured for topology hiding
		A is authorized to use the resource list userPRES_list
Test Sequence:	Step	
	1	User B publishes presence and capability information
	2	User B is informed of its presence status update
	3	User A subscribes to resource list previously stored in the User A client as XDMS list of contacts
	4	RLS performs authorization checks to ensure that User A is authorized to use resource lists
	5	RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SIP URI
	6	PS performs authorization checks on the originator to ensure it is allowed to watch the presentity
	7	RLS notifies with presence and capability information for all the presentities represented by the resource list SIP URI
	8	User A sees user B presence and capability information
Conformance Criteria:	Check	
Ginena.	2	TP_IMS_5097_13 in CFW step 6 (PUBLISH): ensure that { when {IMS_B receives a PUBLISH from IMS_A } then {IMS_B sends the PUBLISH to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter and containing access-network-charging-info} } TP_IMS_5108_07 in CFW step 28 (SUBSCRIBE): ensure that { when { IMS_A receives a SUBSCRIBE addressed to UE_B } then { IMS_B sends the SUBSCRIBE to AS_B containing a topmost Route header indicating the SIP URI of AS_B containing a Route header indicating the S-CSCF_SIP URI of IMS_B containing a P-Charging-Vector_header
	3	<pre>containing an orig-ioi parameter indicating IMS_A and not containing a term-ioi parameter} } } TP_IMS_5313_01 in CFW step 34 (200 OK) ensure that { when { IMS_A receives a response from IMS_B containing a P-Charging-Vector_header including an access-network-charging-info_parameter } then { IMS_A sends the response to AS_A containing a P-Charging-Vector_header including an access-network-charging-info_parameter } }</pre>

Step					Direc	tion					Message	Comment
	U	٦ C	A	I			I	A	U	U		
	s e	E A	S A	M S	B C	B C	M S	S B	E B	s e		
	r			Ă	F	F	В	_	_	r		
1	A				A	B				В		User B publishes presence and
												capability information
2											PUBLISH	UE_B sends PUBLISH with information for all commonly
				←					_			supported presence and capability
												elements
3					→						PUBLISH	IMS_A forwards the PUBLISH to IBCF_A
4						\rightarrow					PUBLISH	IBCF_A forwards the PUBLISH to IBCF_B
5							\rightarrow				PUBLISH	IBCF_B forwards the PUBLISH to IMS_B
6								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
7							←	-			200 OK	IMS_B AS responds with a 200 OK to IMS_B
8						←					200 OK	IMS_B forwards the 200 OK response to IBCF_B
9					←						200 OK	IBCF_B forwards the 200 OK
10					Ì						200 OK	response to IBCF_A IBCF_A forwards the 200 OK
10				←							200 01	response to IMS_A
11									\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
12												User B is informed of its presence
13												status update User A subscribes to resource list
10												previously stored in the User A client as XDMS list of contacts
14											SUBSCRIBE	UE_A sends ANONYMOUS
				_								SUBSCRIBE for "presence" event with expiry time of 0 to IMS_A
				, 								indicating support to "eventlist" to a
15												resource list SIP URI
15			←								SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
16												RLS performs authorization checks
												to ensure that User A is authorized to use resource lists
17				→							200 OK	IMS_A AS responds with a 200 OK to IMS_A
18		←									200 OK	IMS_A forwards the 200 OK
19											NOTIFY	response to UE_A IMS_A AS sends NOTIFY to
20											NOTIFY	IMS_A IMS_A forwards the NOTIFY to
		←										UE_A
21				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
22											200 OK	IMS_A forwards the 200 OK response to IMS_A AS
23												RLS resolves watcher resource's address and subscribes for
												presence event notification for all
												the presentities represented by the resource list SIP URI
24											SUBSCRIBE	IMS_A AS (RLS) sends
				\rightarrow								SUBSCRIBE for "presence" event to IMS_A
25					→						SUBSCRIBE	IMS_A forwards the SUBSCRIBE
			I		1							to IBCF_A

Step					Direct	ion					Message	Comment
	U	U	Α	Ι	Ι	Ι	Ι	Α	U	U		
	S	E A	S A	M S	B C	B C	M S	S B	E B	S		
	e r	A	A	A	F	F	B	Р	D	e r		
	Â				A	В	_			В		
26						→					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
07						1						to IBCF_B
27							\rightarrow				SUBSCRIBE	IBCF_B forwards the SUBSCRIBE to IMS_B
28											SUBSCRIBE	IMS_B forwards the SUBSCRIBE
								~				to IMS_B AS (PS)
29												PS performs authorization checks
												on the originator to ensure it is
30											200 OK	allowed to watch the presentity IMS_B AS (PS) responds with a
30							←				200 OK	200 OK to IMS_B
31						,					200 OK	IMS_B forwards the 200 OK
												response to IBCF_B
32					←	_					200 OK	IBCF_B forwards the 200 OK
33											200 OK	response to IBCF_A IBCF_A forwards the 200 OK
33				←	-						200 OK	response to IMS_A
34											200 OK	IMS_A forwards the 200 OK
												response to IMS_A AS (RLS)
35											NOTIFY	IMS_B AS sends a NOTIFY to
						(IBCF_B with the presence and capability information of UE_B
36											NOTIFY	IBCF_B forwards the NOTIFY to
00					(IBCF_A
37				(IBCF_A forwards the NOTIFY to
												IMS_A
38			←								NOTIFY	IMS_A forwards the NOTIFY to IMS_A AS (RLS)
39			,								200 OK	IMS_A AS responds with a 200 OK
				\rightarrow								to IMS_A
40					_				ĺ		200 OK	IMS_A forwards the 200 OK
					1						000.01/	response to IBCF_A
41						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
42											200 OK	IBCF_B forwards the 200 OK
									→			response to IMS_B AS
43												RLS notifies with presence and
												capability information for all the
												presentities represented by the resource list SIP URI
44											NOTIFY	IMS_A AS sends NOTIFY to
				→								IMS_A
45		←									NOTIFY	IMS_A forwards the NOTIFY to
46		·									200 01	UE_A UE_A responds with a 200 OK to
46			_	\rightarrow							200 OK	IMS_A
47			,								200 OK	IMS_A forwards the 200 OK
			K									response to IMS_A AS
48												User A sees user B presence and
												capability information

4.5.2.5 Watcher subscription to resource list in home network

	Interoperability Test Description									
Identifier:	TD_IMS_PRES_0005									
-	IMS network supports properly presence service when a watcher subscribes to a resource list containing one or more presentities located in different networks.									
Configuration:	CF_INT_AS									
SUT	IMS_A									

		Interoperability Test Desci	ription							
References	Test Pur	<u> </u>	Specification Reference							
	TP_IMS_	5108_07	TS 124 229 [1], clause 5.4.3.3 ¶1							
	TP_IMS_	5313_01	TS 124 229 [1], clause 5.4.6.1.3 ¶2							
Use Case ref.:	UC_RCS	_3_I								
			· · · · · · · ·							
 Pre-test conditions: HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according t UE_B is registered in IMS_B optionally using userPRES according t UE_A is optionally configured to receive notifications with watcher in IMS_A is configured to contact AS_A IMS_B is optionally configured for reactive authorization IMS_A is within the trust domain of IMS_B IMS_A not configured for topology hiding 										
		A is authorized to use the resource								
Test Sequence:	Step									
reet ocqueries.	1	User B publishes presence and c	apability information							
	2	User B is informed of its presence								
	3		t previously stored in the User A client as							
		XDMS list of contacts								
	4	RLS performs authorization checks to ensure that User A is authorized to use resource lists								
	5	RLS resolves watcher resource's address and subscribes for presence event notification for all the presentities represented by the resource list SI URI								
	6	PS performs authorization checks on the originator to ensure it is allowed to watch the presentity								
	7	RLS notifies with presence and c represented by the resource list \$	apability information for all the presentities SIP URI							
	8	User A sees user B presence and	d capability information							
, í										
Conformance	Check									
Criteria:	1	TP_IMS_5108_07 in CFW step 2								
		ensure that {	2 (SUBSCRIDE).							
		when { IMS_A receives a SUBSC	CRIBE addressed to UE_B }							
		then { IMS_B sends the SUBSC								
		containing a topmost Rou								
		indicating the SIP URI of	of AS_B							
		containing a Route heade								
		indicating the S-CSCF_								
		containing a P-Charging-								
			arameter indicating IMS_A and							
		not containing a term-id	or parametery							
		}								
	2	TP_IMS_5313_01 in CFW step 2	8 (200 OK)							
		ensure that {	· · · · ·							
		when { IMS_A receives a response								
		containing a P-Charging- including an access-net	Vector_header twork-charging-info_parameter							
		}								
		then { IMS_A sends the response								
		containing a P-Charging-								
		including an access-net	twork-charging-info_parameter							
		}								

Step					Direct	ion					Message	Comment
	U	U E	A S	I	l B	I B	I M	A S	U E	U		
	s e	A	A	S	č	Č	S	B	В	s e		
	r			Α	F	F B	В			r B		
1	A				A	<u>в</u>				В		User B publishes presence and
												capability information
2											PUBLISH	UE_B sends PUBLISH with information for all commonly
							<					supported presence and capability
											PUBLISH	elements
3								\rightarrow			PUBLISH	IMS_B forwards the PUBLISH to IMS_B AS (PS)
4							<u> </u>				200 OK	IMS_B AS responds with a 200 OK
5							Ì				200 OK	to IMS_B IMS_B forwards the 200 OK
5									\rightarrow		200 OK	response to UE_B
6												User B is informed of its presence status update
7												User A subscribes to resource list
												previously stored in the User A
8											SUBSCRIBE	client as XDMS list of contacts UE_A sends ANONYMOUS
-												SUBSCRIBE for "presence" event
				→								with expiry time of 0 to IMS_A indicating support to "eventlist" to a
												resource list SIP URI
9			←								SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IMS_A AS (RLS)
10												RLS performs authorization checks
												to ensure that User A is authorized to use resource lists
11											200 OK	IMS_A AS responds with a 200 OK
10											000 01/	to IMS_A IMS_A forwards the 200 OK
12		←									200 OK	response to UE_A
13				→							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
14		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
15				→							200 OK	UE_A responds with a 200 OK to IMS_A
16											200 OK	IMS_A IMS_A forwards the 200 OK
										_		response to IMS_A AS
17												RLS resolves watcher resource's address and subscribes for
												presence event notification for all
												the presentities represented by the resource list SIP URI
18											SUBSCRIBE	IMS_A AS (RLS) sends
				→								SUBSCRIBE for "presence" event to IMS_A
19					→						SUBSCRIBE	IMS_A forwards the SUBSCRIBE to IBCF_A
20						→					SUBSCRIBE	IBCF_A forwards the SUBSCRIBE
21							→				SUBSCRIBE	to IBCF_B IBCF_B forwards the SUBSCRIBE
22								_			SUBSCRIBE	to IMS_B IMS_B forwards the SUBSCRIBE
23												to IMS_B AS (PS) PS performs authorization checks
25												on the originator to ensure it is
24											200 OK	allowed to watch the presentity IMS_B AS (PS) responds with a
							K					200 OK to IMS_B

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S A	I M S A	I B C F A	I B C F B	I M S B	A S B	U E B	U s e r B		
25						←					200 OK	IMS_B forwards the 200 OK response to IBCF_B
26					←						200 OK	IBCF_B forwards the 200 OK response to IBCF_A
27				←							200 OK	IBCF_A forwards the 200 OK response to IMS_A
28			←								200 OK	IMS_A forwards the 200 OK response to IMS_A AS (RLS)
29						←					NOTIFY	IMS_B AS sends a NOTIFY to IBCF_B with the presence and capability information of UE_B
30					←						NOTIFY	IBCF_B forwards the NOTIFY to IBCF_A
31				←	_							IBCF_A forwards the NOTIFY to IMS_A
32			←								NOTIFY	IMS_A forwards the NOTIFY to IMS_A AS (RLS)
33				→							200 OK	IMS_A AS responds with a 200 OK to IMS_A
34					\rightarrow						200 OK	IMS_A forwards the 200 OK response to IBCF_A
35						\rightarrow					200 OK	IBCF_A forwards the 200 OK response to IBCF_B
36								→			200 OK	IBCF_B forwards the 200 OK response to IMS_B AS
37												RLS notifies with presence and capability information for all the presentities represented by the resource list SIP URI
38				→							NOTIFY	IMS_A AS sends NOTIFY to IMS_A
39		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
40				\rightarrow							200 OK	UE_A responds with a 200 OK to IMS_A
41			←								200 OK	IMS_A forwards the 200 OK response to IMS_A AS
42												User A sees user B presence and capability information

4.5.3 IM/Chat service

4.5.3.1 1-to-1 chat standard procedure

4.5.3.1.1 1-to-1 chat standard procedure - interworking

	Interoperabilit	y Test Description						
Identifier:	TD_IMS_CHAT_0001							
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed.							
Configuration:	CF_INT_AS							
SUT	IMS_A and IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5097_01 TS 124 229 [1], clause 5.4.3.2 ¶11							
	(1 st numbered list)							

		Interoperability Test Desc	ription
	TP_IMS_	· · ·	TS 124 229 [1], clause 5.4.3.3 ¶5
		3100_03	(item 4 in 1 st numbered list)
	TP_IMS_	E11E 08	TS 124 229 [1], clause 5.4.3.3 ¶89
		5115_08	
		P_CHAT_0001	(4 th numbered list) RFC 4975 [10],
		F_CHA1_0001	clauses 5.4, 7.1 and 7.2
Use Case ref.:	UC_RCS	_4_I & UC_MSRP_01	
Pre-test	 HSS 	of IMS_A and of IMS B is configu	red according to table 1
conditions:			blished to their respective IMS networks as
		S 186 011-2 [9], clause 4.2.1	
		A and UE_B shall support MSRP	
			using userPRES according to table 1
			using userPRES according to table 1
			e notifications with watcher information
		A is authorized to see presence in	
	 IMS_ 	A is configured to contact AS_A	
	 IMS_ 	B is configured to contact AS_B	
		B is optionally configured for react	ive authorization
		A is within the trust domain of IM	
		A and UE_B have already perform	
		A not configured for topology hid	
Test Sequence:	Step		
	1	User A selects User B in the pho	one address book and sends him an initial
		message with MSRP indication	
	2	User B is informed of incoming r	nessage
	3	User A is informed that initial me	
	4	User B reads the initial message	e from user A and opens the 1-to-1 chat
	5	Users perform chatting (MSRP s	session)
	6A	Lloor A closes the 1 to 1 shot	
1		User A closes the 1-to-1 chat	
	6B	User B closes the 1-to-1 chat	
	6B 7A	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch	
	6B	User B closes the 1-to-1 chat	
Conformance	6B 7A	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch	
Conformance Criteria:	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch	hat with user A is closed
	6B 7A 7B	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step	hat with user A is closed
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that {	nat with user A is closed 10 (INVITE):
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN	10 (INVITE): VITE to UE_B }
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_h	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF	at with user A is closed 10 (INVITE): VITE to UE_B } AI INVITE header _SIP_URI of IMS_A
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-value)	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a orig-ioi_pot	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a orig-ioi_pot	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a nicid-valu containing a orig-ioi_po not containing a term-i containing a Record-Route not containing a Record-Route containing a Record-Route	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ute_header
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a nicid-valu containing a orig-ioi_po not containing a term-i	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ute_header
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a nicid-valu containing a orig-ioi_po not containing a nicid-valu containing a receives not containing a term-i containing a Record-Rou indicating the originatii }	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ute_header ng S-CSCF_SIP_URI }
	6B 7A 7B Check	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing a nicid-valu containing a orig-ioi_p not containing a orig-ioi_p not containing a term-i containing a Record-Rou indicating the originatii } TP_IMS_5108_03 in CFW step	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ute_header ng S-CSCF_SIP_URI }
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_p not containing a receives not containing a term-1 containing a Record-Rou indicating the originatii } TP_IMS_5108_03 in CFW step ensure that {	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ite_header ng S-CSCF_SIP_URI } 14 (INVITE)
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a receives not containing a term-i containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initial	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and tte_header bg S-CSCF_SIP_URI } 14 (INVITE) INVITE from IMS_A addressed_to UE_B}
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a orig-ioi_pa not containing a term-i containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ite_header bg S-CSCF_SIP_URI } 14 (INVITE) I INVITE from IMS_A addressed_to UE_B} i to AS_B
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_p not containing a receives not containing a term-i containing a Record-Rou indicating the originatii } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a topmost Route indicating a topmost Route	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and tte_header hg S-CSCF_SIP_URI } 14 (INVITE) I INVITE from IMS_A addressed_to UE_B} i to AS_B ute_header
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a orig-ioi_pa not containing a term-i containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ite_header bg S-CSCF_SIP_URI } 14 (INVITE) 14 (INVITE from IMS_A addressed_to UE_B} i to AS_B ute_header of AS_B and
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a orig-ioi_pa not containing a receives not containing a term-i containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a topmost Ro indicating the SIP_UR containing a Route_head	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and tte_header bg S-CSCF_SIP_URI } 14 (INVITE) 14 (INVITE from IMS_A addressed_to UE_B} i to AS_B ute_header of AS_B and
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a orig-ioi_pa not containing a receives not containing a term-i containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a topmost Ro indicating the SIP_UR containing a Route_head	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ite_header bg S-CSCF_SIP_URI } 14 (INVITE) 14 (INVITE from IMS_A addressed_to UE_B} i to AS_B ute_header of AS_B and der _SIP_URI of IMS_B and
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a receives not containing a receives not containing a receives not containing a receives not containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a topmost Ro indicating the SIP_UR containing a Route_head indicating the S-CSCF containing a P-Charging including a orig-ioi_pan	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and lite_header hg S-CSCF_SIP_URI } 14 (INVITE) 11 INVITE from IMS_A addressed_to UE_B} to AS_B ute_header of AS_B and der _SIP_URI of IMS_B and -Vector_header ameter
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a Route_head indicating the SIP_UR containing a P-Charging including a orig-ioi_pal indicating the S-CSCF	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE header _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ite_header og S-CSCF_SIP_URI } 14 (INVITE) 14 (INVITE from IMS_A addressed_to UE_B} ito AS_B ute_header of AS_B and der _SIP_URI of IMS_B and -Vector_header ameter dentifier of IMS_A and
	6B 7A 7B Check 1	User B closes the 1-to-1 chat User A is informed that 1-to-1 ch User B is informed that 1-to-1 ch User B is informed that 1-to-1 ch TP_IMS_5097_01 in CFW step ensure that { when { UE_A sends an initial IN then { IMS_B receives the initia not containing a Route_1 indicating the S-CSCF containing a P-Charging (containing an icid-valu containing a orig-ioi_pa not containing a receives not containing a receives not containing a receives not containing a receives not containing a Record-Rou indicating the originatin } TP_IMS_5108_03 in CFW step ensure that { when {IMS_B receives an initia then {IMS_B sends the INVITE containing a topmost Ro indicating the SIP_UR containing a Route_head indicating the S-CSCF containing a P-Charging including a orig-ioi_pan	at with user A is closed 10 (INVITE): VITE to UE_B } al INVITE neader _SIP_URI of IMS_A -Vector_header e_parameter and arameter indicating IMS_A and ss-network-charging-info_parameter and oi_parameter) and ute_header ng S-CSCF_SIP_URI } 14 (INVITE from IMS_A addressed_to UE_B} it to AS_B ute_header of AS_B and der _SIP_URI of IMS_B and -Vector_header ameter dentifier of IMS_A and

Interoperability Test Description									
3	TP_IMS_5115_08 in CFW step 35 (200 OK)								
	ensure that {								
	when { IMS_B receives 200_response from AS_B addressed to UE_A }								
	then { IMS_B sends the 200_response to IMS_A								
	containing a P-Charging-Vector_header								
	including a orig-ioi_parameter								
	indicating operator_identifier of IMS_A and								
	including a term-ioi_parameter								
	indicating operator identifier of IMS_B }								
	}								

Step					Direc	tion					Message	Comment
	U	U	Α	Ι	Ι	I	I	Α	U	U		
	S	Е	S/	М	В	В	М	S/	E	S		
	е	Α	I	S	С	C	S	I	В	е		
	r A		M A	Α	F A	F B	В	MB		r B		
1			Ĥ			Ť				Ť		User A selects User B in the phone
	_	→										address book and sends him an
												initial message
2											INVITE	UE_A sends INVITE to IMS_A with
												user A initial message in the Subject
				\rightarrow								header, CPIM/IMND headers and
												the first SDP offer indicating all specific data for MSRP connection
												set up (CheckMSRP1)
3											100 Trying	IMS_A responds with a 100 Trying
5		←									100 Hying	provisional response
4			<u> </u>								INVITE	IMS_A forwards INVITE to AS/IM_A
5			`								100 Trying	AS/IM_A responds with a 100
Ū				\rightarrow							liee lijilig	Trying provisional response
6											INVITE	AS/IM_A returns, possibly modified,
				~								INVITE to IMS_A
7			<u> </u>								100 Trying	IMS_A responds with a 100 Trying
												provisional response
8					\rightarrow							IMS_A forwards INVITE to IBCF_A
9				←							100 Trying	IBCF_A responds with a 100 Trying
10											INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
11						~					100 Trying	IBCF_A lot wards INVITE to IBCF_B IBCF_B responds with a 100 Trying
11					←						TOO Trying	provisional response
12											INVITE	IBCF_B forwards INVITE to IMS_B
13							1				100 Trying	IMS_B responds with a 100 Trying
15						←					100 Trying	provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15							/				100 Trying	AS/IM_B responds with a 100
												Trying provisional response
16							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
17											100 Trying	IMS_B responds with a 100 Trying
								\rightarrow			lise nymg	provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							<u> </u>				100 Trying	UE_B optionally responds with a
							N					100 Trying provisional response
20									_	\rightarrow		User B is informed of incoming
24											190 Dinging	message
21											180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that
							←					invitation to a 1-to-1 chat session
												has reached the invited user
22											180 Ringing	IMS_B forwards 180 Ringing
								~			5 5	response to AS/IM_B
23							<u> </u>				180 Ringing	AS/IM_B returns, possibly modified,
							\sim					180 Ringing response to IMS_B

Step					Direc	tion					Message	Comment
	U	U	A	I	I		I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	Ă	F	F	В	M	_	r		
0.1	Α		Α		Α	В		В	_	В		INO D (anusaria 400 Dia sia a
24						←	_				180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
25					←	_					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
26				←							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27			←	_							180 Ringing	IMS_A forwards 180 Ringing
28				→							180 Ringing	response to AS/IM_A AS/IM_A returns, possibly modified,
29		<i>(</i>									180 Ringing	180 Ringing response to IMS_A IMS_A forwards 180 Ringing
30											MESSAGE	response to UE_A UE_B sends MESSAGE to IMS_B
							←					with delivery notification of initial message from user A
31								→			MESSAGE	IMS_B forwards MESSAGE to AS/IM_B
32							←	4			MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
33						←					MESSAGE	IMS_B forwards MESSAGE to
34					-						MESSAGE	IBCF_B IBCF_B forwards MESSAGE to
35				<u> </u>	_						MESSAGE	IBCF_A IBCF_A forwards MESSAGE to
36			/								MESSAGE	IMS_A IMS_A forwards MESSAGE to
37											MESSAGE	AS/IM_A AS/IM_A returns, possibly modified,
38				→							MESSAGE	MESSAGE to IMS_A IMS_A forwards MESSAGE to
		<i>←</i>										UE_A
39	←	-										User A is informed that initial message was delivered to user B
40				→							200 OK	UE_A responds MESSAGE with 200 OK response
41			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
42				→							200 OK	AS/IM_A returns, possibly modified,
43					→						200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
44						→					200 OK	to IBCF_A IBCF_A forwards 200 OK response
45											200 OK	to IBCF_B IBCF_B forwards 200 OK response
46							~				200 OK	to IMS_B IMS_B forwards 200 OK response
47								7			200 OK	to AS/IM_B AS/IM_B returns, possibly modified,
							K	1				200 OK response to IMS_B
48									→		200 OK	IMS_B forwards 200 OK response to UE_B
49									←			User B reads the initial message from user A and opens the 1-to-1 chat
50											200 OK	UE_B responds INVITE with 200 OK response with SDP to indicate
							←					that the session has been accepted and inform A-side with specific data
											200 01/	for MSRP connection set up
51								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B

Step					Direc	tion					Message	Comment
	U	U	Α	I	Ι	I	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	EB	s e		
	r	^	M	Ă	F	F	В	М		r		
	Α		Α		Α	В		В		В		
52							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
53						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
54					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
55				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
56			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
57				→							200 OK	AS/IM_A returns, possibly modified,
58		←									200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
59				—							ACK	to UE_A (CheckMSRP2) UE_A acknowledges the receipt of
60			,	ĺ							ACK	200 OK for INVITE IMS_A forwards ACK to AS/IM_A
60 61											ACK	AS/IM_A returns, possibly modified,
01				\rightarrow							//or	ACK to IMS_A
62					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
63						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
64							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
65								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
66							←	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
67									\rightarrow		ACK	IMS_B forwards ACK to UE_B
68 69A	←									→		Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP and use 5.4.1 test description) - CheckMSRP2 User A closes the 1-to-1 chat
70A				→							BYE	UE_A releases the 1-to-1 chat
71A			,	-							BYE	session with BYE IMS_A forwards BYE to AS/IM_A
71A 72A				\rightarrow							BYE	AS/IM_A returns, possibly modified,
73A											BYE	BYE to IMS_A IMS_A forwards BYE to IBCF_A
73A 74A					~						BYE	IBCF_A forwards BYE to IBCF_B
74A 75A						_					BYE	IBCF_B forwards BYE to IMS_B
75A 76A							_				BYE	IMS_B forwards BYE to AS/IM_B
70A 77A								→			BYE	AS/IM_B returns, possibly modified,
												BYE to IMS_B
78A			1						\rightarrow		BYE	IMS_B forwards BYE to UE_B
79A							←				200 OK	UE_B sends 200 OK for BYE
80A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
81A							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
82A						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
83A					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
84A				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
85A			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
86A				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
	I	I	1	I	I	I	I	I	I	I	L	200 OK response to IMS_A

Step					Direc	tion					Message	Comment
•	U	U	Α	I	Ι	I	I	Α	U	U		
	S	Е	S/	М	В	В	М	S/	Е	S		
	е	Α	I	S	С	С	S	I	в	е		
	r		M	Α	F	F	в	M		r		
074	Α	-	Α		Α	В		В		В	200 01	
87A		←									200 OK	IMS_A forwards 200 OK response to UE_A
88A	←	-										User A is informed that 1-to-1 chat with user B is closed
69B									←	_		User B close the 1-to-1 chat
70B							←	_	_		BYE	UE_B releases the 1-to-1 chat session with BYE
71B								→			BYE	IMS_B forwards BYE to AS/IM_B
72B							←	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
73B						←					BYE	IMS_B forwards BYE to IBCF_B
74B					<u> </u>						BYE	IBCF_B forwards BYE to IBCF_A
75B				<u> </u>	_						BYE	IBCF_A forwards BYE to IMS_A
76B			<u> </u>	_`							BYE	IMS_A forwards BYE to AS/IM_A
77B			-	→							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
78B		←									BYE	IMS_A forwards BYE to UE_A
79B				\rightarrow							200 OK	UE_A sends 200 OK for BYE
80B			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
81B				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
82B					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
83B						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
84B							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
85B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
86B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
87B									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
88B										→		User B is informed that that 1-to-1 chat with user A is closed

4.5.3.1.2 1-to-1 chat standard procedure - roaming (optional)

	Interoperability Te	est Description							
Identifier:	TD_IMS_CHAT_0002								
Summary:	IMS network supports 1-to-1 IM/Ch	at service and messages exchange between two							
_	users, one user in its home network	and one user roaming can be performed.							
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1							
		(1 st numbered list)							
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5							
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11							
		(items 5 and 8 in 1 st numbered list)							
	TD_MSRP_CHAT_0001	RFC 4975 [10],							
		clauses 5.4, 7.1 and 7.2							
Use Case ref.:	UC_RCS_4_R & UC_MSRP_01								
Pre-test	HSS of IMS_A and of IMS B is	configured according to table 1							
conditions:	UE_A and UE_B have IP bear	ers established to their respective IMS networks as							

		Interoperability Test Description								
		S 186 011-2 [9], clause 4.2.1								
		A and UE_B shall support MSRP								
		A is registered in IMS_A optionally using userPRES according to table 1								
		B is registered in IMS_B via IMS_A optionally using userPRES according to								
	table									
	• UE_/	A is optionally configured to receive notifications with watcher information								
	• UE_A	A is authorized to see presence information of UE_B								
	 IMS_ 	A is configured to contact AS_A								
	 IMS_ 	B is configured to contact AS_B								
		B is optionally configured for reactive authorization								
		A is within the trust domain of IMS_B								
		A and UE_B have already performed capability discovery process								
		A not configured for topology hiding								
Test Sequence:	Step									
	1	User B selects User A in the phone address book and sends him an initial								
		message with MSRP indication								
	2	User A is informed of incoming message								
	3	User B is informed that initial message was delivered to user A								
	4	User A reads the initial message from user B and opens the 1-to-1 chat								
	5	Users perform chatting (MSRP session)								
	6A	User B closes the 1-to-1 chat								
	6B									
		User A closes the 1-to-1 chat								
		User B is informed that that 1-to-1 chat with user A is closed								
	7A	User B is informed that that 1-to-1 chat with user A is closed								
		User B is informed that that 1-to-1 chat with user A is closed User A is informed that that 1-to-1 chat with user B is closed								
Conformance	7A 7B									
Conformance Criteria:	7A									
Conformance Criteria:	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed								
	7A 7B	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE)								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that {								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B }								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number where it awaits subsequent requests' from UE_A and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number where it awaits subsequent requests' from UE_A and (the P-CSCF-FQDN_address or								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number where it awaits subsequent requests' from UE_A and								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number where it awaits subsequent requests' from UE_A and (the P-CSCF-FQDN_address or								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number 'where it awaits subsequent requests' from UE_A and (the P-CSCF-IP_address)) of IMS_A and not containing P-Preferred-Identity_header and containing a P-Asserted-Identity_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF-FQDN_address or the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number 'where it awaits subsequent requests' from UE_A and (the P-CSCF-IP_address)) of IMS_A and not containing P-Preferred-Identity_header and containing a P-Asserted-Identity_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF_Via_port_number and (the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number where it awaits subsequent requests' from UE_A and (the P-CSCF-IP_address)) of IMS_A and not containing P-Preferred-Identity_header containing a P-Asserted-Identity_header								
	7A 7B Check	User A is informed that that 1-to-1 chat with user B is closed TP_IMS_5046_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a Route_header not indicating the P-CSCF_SIP_URI of IMS_A and containing a Route_header indicating the "list of Service Route header URIs from the registration" and containing an additional Via_header containing (the P-CSCF-via_port_number and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header indicating (the P-CSCF_port_number 'where it awaits subsequent requests' from UE_A and (the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and not containing P-Preferred-Identity_header and containing a P-Asserted-Identity_header								

	Interoperability Test Description
2	TP_IMS_5067_01 in CFW step 6 (INVITE)
	ensure that {
	when { IMS_A receives an initial INVITE from UE_B }
	then { IMS_A sends the INVITE to IMS_B
	containing a P-Charging-Vector_header
	}
	}
3	TP_IMS_5097_09 in CFW step 10 (INVITE)
	ensure that {
	when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }
	then { IMS_B sends the initial INVITE to AS_B
	containing a Route_header
	indicating the SIP_URI of AS_B and
	containing a P-Charging-Function-Addresses_header and
	containing a P-Charging-Vector_header
	(including a orig-ioi_parameter
	indicating operator_identifier of IMS_A and
	not including a term-ioi_parameter and
	including access-network-charging-info) }
	}

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	s	Е	S/	М	В	В	М	S/	E	S		
	е	Α	I	S	c	ç	S	I	В	е		
	r A		M	Α	F	F B	В	MB		r B		
1												User B selects User A in the phone
									←	_		address book and sends him an
												initial message
2											INVITE	UE_B sends INVITE to IMS_A with
												user B initial message in the Subject
				←								header, CPIM/IMND headers and the
												first SDP offer indicating all specific
2											100 Truin r	data for MSRP connection set up
3									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
4					\ \						INVITE	IMS_A forwards INVITE to IBCF_A
5					1						100 Trying	IBCF_A responds with a 100 Trying
5				←	_						100 Hying	provisional response
6						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
7											100 Trying	IBCF_B responds with a 100 Trying
					<i>(</i>						, , , , , , , , , , , , , , , , , , , ,	provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						/					100 Trying	IMS_B responds with a 100 Trying
												provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11							<u> </u>				100 Trying	AS/IM_B responds with a 100 Trying
40												provisional response
12							←				INVITE	AS/IM_B returns, possibly modified,
13											100 Trying	INVITE to IMS_B IMS_B responds with a 100 Trying
15								\rightarrow			100 mying	provisional response
14						←					INVITE	IMS_B forwards INVITE to IBCF_B
15											100 Trying	BCF_B responds with a 100 Trying
											, ,	provisional response
16					←					1	INVITE	IBCF_B forwards INVITE to IBCF_A
17						_				1	100 Trying	IBCF_A responds with a 100 Trying
												provisional response
18				←						1	INVITE	IBCF_A forwards INVITE to IMS_A
19					→					1	100 Trying	IMS_A responds with a 100 Trying
					1							provisional response
20			←	\neg						1	INVITE	IMS_A forwards INVITE to AS/IM_A

104

Step					Direct	ion					Me	ssage	Comment
	U	U	Α	I	I	Ι	Ι	Α	U	U			
	s e	E A	S/	M S	B C	B C	M S	S/ I	E B	s e			
	r	~	M	A	F	F	B	M		r			
	Α		Α		Α	В		В		В			
21				\rightarrow							100	Trying	AS/IM_A responds with a 100 Trying provisional response
22				→							INVI	TE	AS/IM_A returns, possibly modified, INVITE to IMS_A
23			←								100 -	Trying	IMS_A responds with a 100 Trying provisional response
24		←									INVI	TE	IMS_A forwards INVITE to UE_A
25				\rightarrow								Trying	UE_A optionally responds with a 100 Trying provisional response
26	€	-											User A is informed of incoming message
27											180	Ringing	UE_A responds to initial INVITE with
				→								5 5	180 Ringing to indicate that invitation to a 1-to-1 chat session has reached the invited user
28			←								180 I	Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
29				\rightarrow							180	Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
30					\rightarrow						180	Ringing	IMS_A forwards 180 Ringing response to IBCF_A
31						→					180 I	Ringing	IBCF_A forwards 180 Ringing
32							\rightarrow				180 I	Ringing	IBCF_B forwards 180 Ringing
33								\rightarrow			180 I	Ringing	IMS_B forwards 180 Ringing
34											180	Ringing	AS/IM_B returns, possibly modified,
35											180	Ringing	180 Ringing response to IMS_B IMS_B forwards 180 Ringing
36					<u> </u>	_					180	Ringing	response to IBCF_B IBCF_B forwards 180 Ringing
37				(180	Ringing	response to IBCF_A IBCF_A forwards 180 Ringing
38											180	Ringing	response to IMS_A IMS_A forwards 180 Ringing
39											MES	SAGE	response to UE_B UE_A sends MESSAGE to IMS_A
				\rightarrow									with delivery notification of initial message from user B
40			←								MES	SAGE	IMS_A forwards MESSAGE to AS/IM_A
41				\rightarrow							MES	SAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
42					\rightarrow						MES	SAGE	IMS_A forwards MESSAGE to IBCF_A
43						→					MES	SAGE	IBCF_A forwards MESSAGE to IBCF_B
44							\rightarrow				MES	SAGE	IBCF_B IBCF_B forwards MESSAGE to IMS_B
45								\rightarrow			MES	SAGE	IMS_B forwards MESSAGE to
46							—				MES	SAGE	AS/IM_B AS/IM_B returns, possibly modified,
47						~					MES	SAGE	MESSAGE to IMS_B IMS_B forwards MESSAGE to
48											MES	SAGE	IBCF_B IBCF_B forwards MESSAGE to
49					Î						MES	SAGE	IBCF_A IBCF_A forwards MESSAGE to
				(Π								IMS_A

Step					Directi	on					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	Ā	3/ I	S	C	C	S	3/ I	В	e		
	r A		M A	Α	F A	F B	В	M B		r B		
50									→		MESSAGE	IMS_A forwards MESSAGE to UE_B
51										→		User B is informed that initial
52											200 OK	message was delivered to user A UE_B responds MESSAGE with 200
53											200 OK	OK response IMS_A forwards 200 OK response to
54					→						200 OK	IBCF_A IBCF_A forwards 200 OK response
						>						to IBCF_B
55							>				200 OK	IBCF_B forwards 200 OK response to IMS_B
56								>			200 OK	IMS_B forwards 200 OK response to AS/IM_B
57							←	_			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
58						←	4				200 OK	IMS_B forwards 200 OK response to IBCF_B
59					←						200 OK	IBCF_B forwards 200 OK response
60				(200 OK	to IBCF_A IBCF_A forwards 200 OK response
61			,								200 OK	to IMS_A IMS_A forwards 200 OK response to
62											200 OK	AS/IM_A AS/IM_A returns, possibly modified,
63											200 OK	ACK to IMS_A IMS_A forwards ACK to UE_A
		K									200 01	(CheckMSRP2)
64	_	→										User A reads the initial message from user B and opens the 1-to-1 chat
65											200 OK	UE_A responds INVITE with 200 OK response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for MSRP connection set up
66			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
67				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
68					*						200 OK	IMS_A forwards 200 OK response to
69						*					200 OK	IBCF_A IBCF_A forwards 200 OK response
70							`				200 OK	to IBCF_B IBCF_B forwards 200 OK response
71											200 OK	to IMS_B IMS_B forwards 200 OK response to
72								7			200 OK	AS/IM_B AS/IM_B returns, possibly modified,
73							< <u> </u>	1			200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
						←						IBCF_B
74					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
75				←	-	1					200 OK	IBCF_A forwards 200 OK response to IMS_A
76									→		200 OK	IMS_A forwards 200 OK response to UE_B
77				←					_		ACK	UE_B acknowledges the receipt of 200 OK for INVITE
78					>						ACK	IMS_A forwards ACK to IBCF_A

Step					Direc	tion					Message	Comment
	U	U E	A S/	M	I B	I	I	A S/	UE	U		
	s e	Ā	5/ 	S	B C	B C	M S	3/ 	B	s e		
	r		М	Ă	F	F	В	M	_	r		
	Α		Α		Α	В		В		В		
79						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
80							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
81 82											ACK ACK	IMS_B forwards ACK to AS/IM_B AS/IM_B returns, possibly modified,
02							←				ACK	ACK to IMS_B
83						←					ACK	IMS_B forwards ACK to IBCF_B
84					←						ACK	IBCF_B forwards ACK to IBCF_A
85				←							ACK	IBCF_A forwards ACK to IMS_A
86			←								ACK	IMS_A forwards ACK to AS/IM_A
87				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
88		/									ACK	IMS_A forwards ACK to UE_A
89												Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP and
	₩									→		use 5.4.1 test description) -
												CheckMSRP2
90A									←	_		User B closes the 1-to-1 chat
91A				←							BYE	UE_B releases the 1-to-1 chat session with BYE
92A					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
93A						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
94A							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
95A								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
96A							←				BYE	AS/IM_B returns, possibly modified,
97A						,					BYE	BYE to IMS_B IMS_B forwards BYE to IBCF_B
97A 98A					,						BYE	IBCF_B forwards BYE to IBCF_A
99A				<u> </u>	_`						BYE	IBCF_A forwards BYE to IMS_A
100A			←	_`							BYE	IMS_A forwards BYE to AS/IM_A
101A			-								BYE	AS/IM_A returns, possibly modified,
												BYE to IMS_A
102A		←									BYE	IMS_A forwards BYE to UE_A
103A				→							200 OK 200 OK	UE_A sends 200 OK for BYE
104A			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
105A											200 OK	AS/IM_A returns, possibly modified,
												200 OK response to IMS_A
106A					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
107A						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
108A							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
109A								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
110A							←	_			200 OK	AS/IM_B returns, possibly modified,
111A						←					200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response to
112A					_	j					200 OK	IBCF_B IBCF_B forwards 200 OK response
113A											200 OK	to IBCF_A IBCF_A forwards 200 OK response
114A											200 OK	to IMS_A IMS_A forwards 200 OK response to
									\rightarrow			UE_B User B is informed that that 1-to-1
115A										→		chat with user A is closed
90B		\rightarrow										User A closes the 1-to-1 chat

Step					Dire	ction					Message	Comment
	U	U	Α	I	Ι	I	Ι	Α	U	U		
	S	E	S/	M	В	B	M	S/	E	S		
	e r	Α	M	S A	C F	C F	S B	M	В	e r		
	Ă		A	~	A	В	В	B		B		
91B										<u> </u>	BYE	UE_A releases the 1-to-1 chat
												session with BYE
92B			←								BYE	IMS_A forwards BYE to AS/IM_A
93B				_							BYE	AS/IM_A returns, possibly modified,
				,								BYE to IMS_A
94B					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
95B						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
96B							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
97B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
98B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
99B						←					BYE	IMS_B forwards BYE to IBCF_B
100B					←						BYE	IBCF_B forwards BYE to IBCF_A
101B				←							BYE	IBCF_A forwards BYE to IMS_A
102B									\rightarrow		BYE	IMS_A forwards BYE to UE_B
103B				←							200 OK	UE_B sends 200 OK for BYE
104B					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
105B						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
106B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
107B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
108B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
109B						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
110B					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
111B				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
112B			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
113B				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
114B		←									200 OK	IMS_A forwards 200 OK response to UE_A
115B	←											User A is informed that that 1-to-1 chat with user B is closed

4.5.3.2 Several messages prior to establishment of 1-to-1 chat

4.5.3.2.1 Several messages prior to establishment of 1-to-1 chat - interworking

	Interoperability	/ Test Description					
Identifier:	TD_IMS_CHAT_0003						
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed. User B must wait until receiving several messages from User A before accepting the chat invitation						
Configuration:	CF_INT_AS						
SUT	IMS_A and IMS_B						
References	Test Purpose	Specification Reference					
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11					
		(1 st numbered list)					
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5					

		Interoperability Test Desc	ription					
	TP_IMS_		(item 4 in 1 st numbered list) TS 124 229 [1], clause 5.4.3.3 ¶89 (4 th numbered list)					
		P_CHAT_0001	RFC 4975 [10], clauses 5.4, 7.1 and 7.2					
Use Case ref.:	UC_RCS	_4_I & UC_MSRP_01						
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A and UE_B shall support MSRP UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information UE_A is authorized to see presence information of UE_B IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive authorization IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process IMS_A not configured for topology hiding 							
Test Sequence:	Step 1 2 3 4 5 6 7 8 9A 9B 10A 10B	message with MSRP indication User B is informed of incoming m User A is informed that initial mes User A sends to User B a second User B is informed of incoming tw User A is informed that second m User B reads the incoming mess Users perform chatting (MSRP set User A closes the 1-to-1 chat User B closes the 1-to-1 chat User A is informed that 1-to-1 chat	ssage was delivered to user B d message vo messages nessage was delivered to user B ages from user A and opens the 1-to-1 chat ession) at with user B is closed					
Conformance	Check	User B is informed that 1-to-1 cha	at with user A is closed					
Criteria:	2	not containing an access not containing a term-ic containing a Record-Rout indicating the originating } TP_IMS_5108_03 in CFW step 1 ensure that { when {IMS_B receives an initial then {IMS_B sends the INVITE containing a topmost Rou indicating the SIP_URI containing a Route_head	//TE to UE_B } I INVITE eader SIP_URI of IMS_A Vector_header e_parameter and rameter indicating IMS_A and ss-network-charging-info_parameter and bi_parameter) and te_header g S-CSCF_SIP_URI } 4 (INVITE) 1 INVITE from IMS_A addressed_to UE_B} to AS_B ite_header of AS_B and er SIP_URI of IMS_B and Vector_header ameter					

	Interoperability Test Description											
	}											
3	TP_IMS_5115_08 in CFW step 35 (200 OK)											
	ensure that {											
	when { IMS_B receives 200_response from AS_B addressed to UE_A }											
	then { IMS_B sends the 200_response to IMS_A											
	containing a P-Charging-Vector_header											
	including a orig-ioi_parameter											
	indicating operator_identifier of IMS_A and											
	including a term-ioi_parameter											
	indicating operator_identifier of IMS_B }											
	}											

Step					Direc	tion					Message	Comment
	U	U	Α	Ι	I	I	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e	Α	M	S A	C F	C F	S B	M	В	e r		
	r A		A	~	A	В	Б	B		B		
1										T		Follow UC_RCS_4_I (1-48)
2												User A sends to User B a second
												message
3											INVITE	UE_A sends second INVITE to
												IMS_A with user A second message
			_	\rightarrow								in the Subject header, CPIM/IMND headers and the first SDP offer
												indicating all specific data for MSRP
												connection set up
4		,									100 Trying	IMS_A responds with a 100 Trying
												provisional response
5			←								INVITE	IMS_A forwards INVITE to AS/IM_A
6				→							100 Trying	AS/IM_A responds with a 100 Trying provisional response
7				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
8			←								100 Trying	IMS_A responds with a 100 Trying
			l l									provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
10				←							100 Trying	IBCF_A responds with a 100 Trying
11											INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
12						1					100 Trying	IBCF_B responds with a 100 Trying
12					\leftarrow						roo rrying	provisional response
13							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
14						/					100 Trying	IMS_B responds with a 100 Trying
												provisional response
15								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
16							←				100 Trying	AS/IM_B responds with a 100
47							ľ					Trying provisional response
17							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
18								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
10								-				provisional response
19									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
20							←				100 Trying	UE_B optionally responds with a 100 Trying provisional response
21												User B is informed of incoming two
										\rightarrow		messages
22											180 Ringing	UE_B responds to additional INVITE with 180 Ringing to indicate
							←					that invitation to an enhanced
												messaging session has reached the
												invited user
23								_			180 Ringing	IMS_B forwards 180 Ringing
		ļ			I			1				response to AS/IM_B

Step					Direct	ion					Message	Comment
	U	U E	A S/	I M	I B	I B	I M	A S/	UE	U		
	s e	Ā	3/ 	S	Č	Č	S	3/ 	B	s e		
	r		М	Α	F	F	В	М		r		
24			A		A	B	└	<u> </u>		B	180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
25						←					180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
26					←	_					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
27				←	_						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
28			←								180 Ringing	IMS_A forwards 180 Ringing response to AS/IM_A
29				→							180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
30		←									180 Ringing	IMS_A forwards 180 Ringing response to UE_A
31							←				MESSAGE	UE_B sends MESSAGE to IMS_B with delivery notification of second message from user A
32								→			MESSAGE	IMS_B forwards MESSAGE to AS/IM_B
33							←	_			MESSAGE	AS/IM_B returns, possibly modified, MESSAGE to IMS_B
34						←					MESSAGE	IMS_B forwards MESSAGE to IBCF_B
35					←	-					MESSAGE	IBCF_B forwards MESSAGE to IBCF_A
36				←	_						MESSAGE	IBCF_A forwards MESSAGE to IMS_A
37			←								MESSAGE	IMS_A forwards MESSAGE to AS/IM_A
38				→							MESSAGE	AS/IM_A returns, possibly modified, MESSAGE to IMS_A
39		←		_							MESSAGE	IMS_A forwards MESSAGE to
40	←	-										User A is informed that second message was delivered to user B
41				\rightarrow							200 OK	UE_A responds MESSAGE with 200 OK response
42			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
43				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
44					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
45						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
46							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
47								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
48							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
49									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
50									←	_		User B reads the incoming messages from user A and opens the 1-to-1 chat
51							←				603 DECLINE	UE_B responds INVITE 603 DECLINE to indicate that the initial
52											603	session has been declined IMS_B forwards 603 DECLINE
								\rightarrow			DECLINE	response to AS/IM_B

Step					Dire	ction					Message	Comment
•	U	U	Α	Ι	I	I	I	Α	U	U	Ŭ	
	S	Е	S/	М	В	В	м	S/	Е	S		
	е	Α	I	S	C	C	S	I	В	е		
	r A		M A	Α	F	F B	В	M B		r B		
53					A			Р			603	AS/IM_B returns, possibly modified,
55							←	-			DECLINE	603 DECLINE response to IMS_B
54											603	IMS B forwards 603 DECLINE
						(DECLINE	response to IBCF_B
55					(603	IBCF_B forwards 603 DECLINE
											DECLINE	response to IBCF_A
56				←							603	IBCF_A forwards 603 DECLINE
57											DECLINE 603	response to IMS_A IMS_A forwards 603 DECLINE
57			←								DECLINE	response to AS/IM_A
58											603	AS/IM_A returns, possibly modified,
				\rightarrow							DECLINE	603 DECLINE response to IMS_A
59		/									603	IMS_A forwards 603 DECLINE
											DECLINE	response to UE_A
60				\rightarrow							ACK	UE_A acknowledges the receipt of
0.1				-							1.01/	603 DECLINE for INVITE
61			<								ACK	IMS_A forwards ACK to AS/IM_A
62				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
63					\ \						ACK	IMS_A forwards ACK to IBCF_A
64						``					ACK	IBCF_A forwards ACK to IBCF_B
65											ACK	IBCF_B forwards ACK to IBCF_B
66											ACK	IMS_B forwards ACK to AS/IM_B
67								1			ACK	AS/IM_B returns, possibly modified,
07							←	_			ACK	ACK to IMS_B
68									\rightarrow		ACK	IMS_B forwards ACK to UE_B
69											200 OK	UE_B responds second INVITE with
												200 OK response with SDP to
							/					indicate that the session has been
												accepted and inform A-side with
												specific data for MSRP connection
70												set up
70								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
71											200 OK	AS/IM_B returns, possibly modified,
<i>'</i> ·							<	_			200 010	200 OK response to IMS_B
72						,					200 OK	IMS_B forwards 200 OK response
												to IBCF_B
73					<u> </u>						200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
74				←							200 OK	IBCF_A forwards 200 OK response
75											200 OK	to IMS_A IMS_A forwards 200 OK response
75			←								200 OK	to AS/IM_A
76											200 OK	AS/IM_A returns, possibly modified,
				\rightarrow								200 OK response to IMS_A
77		/									200 OK	IMS_A forwards 200 OK response
												to UE_A
78											ACK	UE_A acknowledges the receipt of
70		1										200 OK for the second INVITE
79			(ACK	IMS_A forwards ACK to AS/IM_A
80		1		\rightarrow							ACK	AS/IM_A returns, possibly modified,
81											ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
82											ACK	IBCF_A forwards ACK to IBCF_A
						~					ACK	IBCF_A forwards ACK to IBCF_B
83 84		1					~				ACK	
04		I	I		I	I		7	I	I	AUN	IMS_B forwards ACK to AS/IM_B

Step						Direc	tion					Message	Comment
	U		U	Α	I	I	I	I	Α	U	U		
	S		E	S/	М	В	В	М	S/	Е	S		
	е		Α	I	S	С	С	S	I	В	е		
	r			М	Α	F	F	В	М		r		
	<u>A</u>			<u>A</u>		A	В		В		В		
85								/				ACK	AS/IM_B returns, possibly modified,
													ACK to IMS_B
86										\rightarrow		ACK	IMS_B forwards ACK to UE_B
87													Users perform chatting (see clause
	←	_		_	_		_	_			\rightarrow		5.3.1 Chat 1 to 1 via MSRP
													CheckMSRP3)
88													Continue UC_RCS_4_I (69A-88B)

4.5.3.2.2 Several messages prior to establishment of 1-to-1 chat - roaming (optional)

		Interoperability Test	Description									
Identifier:		_CHAT_0004										
Summary:	users, o	ne user in its home network ar it until receiving several mess	ervice and messages exchange between two ad one user roaming can be performed. User B ages from User A before accepting the chat									
Configuration:	CE RO	AM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B											
References	Test Pu		Specification Reference									
		_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1 st numbered list)									
	TP_IMS	_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5									
			TS 124 229 [1], clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)									
Use Case ref.:	UC_RCS_4_R											
	טט_גטאַ_4_ג 											
Pre-test	 HSS 	S of IMS_A and of IMS B is co	nfigured according to table 1									
conditions:	per • UE_ • UE_ • UE_ • UE_ • IMS • IMS • AS_ • IMS • UE_	TS 186 011-2 [9], clause 4.2.1 A is registered in IMS_A optic B is registered in IMS_B via II e 1 A is optionally configured to re A is authorized to see presen A is configured to contact AS B is configured to contact AS B is optionally configured for r A is within the trust domain of	nally using userPRES according to table 1 MS_A optionally using userPRES according to eccive notifications with watcher information cc information of UE_B S_A S_B eactive authorization if IMS_B formed capability discovery process									
Test Sequence:	Step											
-	1	message with MSRP indica										
	2	User A is informed of incom										
	3		al message was delivered to user A									
	4	User B sends to User A a s										
	5	User A is informed of incom										
	6 7		ond message was delivered to user A									
	7 8	Users perform chatting (MS	messages from user B and opens the 1-to-1 cha									
	8 9A	User B closes the 1-to-1 ch										
	9A 9B	User A closes the 1-to-1 ch										
	96 10A		-1 chat with user A is closed									
	10A 10B		-1 chat with user B is closed									
	IUD	TOSELA IS INICITIED INAL 1-10	- 1 GHAL WILLI USEL D IS GUSEU									

Conformance Criteria:	Check										
	1	TP_IMS_5046_01 in CFW step 6 (INVITE)									
		ensure that {									
		when { IMS_A receives an initial INVITE from UE_B }									
		then { IMS_A sends the INVITE to IMS_B									
		containing a Route_header									
		not indicating the P-CSCF_SIP_URI of IMS_A and									
		containing a Route_header									
		indicating the "list of Service Route header URIs									
		from the registration" and									
		containing an additional Via_header									
		containing (the P-CSCF_via_port_number and									
		(the P-CSCF-FQDN_address or the P-CSCF-IP_address)) of IMS_A and									
		containing an additional topmost Record-Route_header									
		indicating (the P-CSCF_port_number									
		where it awaits subsequent requests' from UE_A and									
		(the P-CSCF-FQDN_address or									
		the P-CSCF-IP_address) of IMS_A and									
		not containing P-Preferred-Identity_header and									
		containing a P-Asserted-Identity_header									
		containing an address of UE_B and									
		containing an address of ot_b and containing a P-Charging-Vector_header									
		containing an icid-value_parameter }									
		}									
	2	TP_IMS_5067_01 in CFW step 6 (INVITE)									
		ensure that {									
		when { IMS_A receives an initial INVITE from UE_B }									
		then { IMS_A sends the INVITE to IMS_B									
		containing a P-Charging-Vector_header									
		}									
		}									
	3	TP_IMS_5097_09 in CFW step 10 (INVITE)									
		ensure that {									
		when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }									
		then { IMS_B sends the initial INVITE to AS_B									
		containing a Route_header									
		indicating the SIP_URI of AS_B and									
		containing a P-Charging-Function-Addresses_header and									
		containing a P-Charging-Vector_header									
		(including a orig-ioi_parameter									
		indicating operator_identifier of IMS_A and									
		not including a term-ioi_parameter and									
		including access-network-charging-info) }									

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1 2									-			Follow UC_RCS_4_R (1-63) User B sends to User A a second message
3				(INVITE	UE_B sends second INVITE to IMS_A with user A second message in the Subject header, CPIM/IMND
												headers and the first SDP offer indicating all specific data for MSRP connection set up
4									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
5					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A

114

Step					Direct	ion				Message	Comment
	U	U	Α	I	Ι	Ι	Ι	Α	UU		
	S	E	S/	M	B	B	M	S/	E s B e		
	e r	Α	M	S A	C F	C F	S B	I M	B e r		
	Â		A	~	A	В	_	В	B		
6				.	_					100 Trying	IBCF_A responds with a 100 Trying
7						<u> </u>				INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
8						1				100 Trying	IBCF_B responds with a 100 Trying
					<u> </u>						provisional response
9							→			INVITE	IBCF_B forwards INVITE to IMS_B
10						←	_			100 Trying	IMS_B responds with a 100 Trying provisional response
11								\rightarrow		INVITE	IMS_B forwards INVITE to AS/IM_B
12							/			100 Trying	AS/IM_B responds with a 100 Trying
10											provisional response
13							←			INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
14								\rightarrow		100 Trying	IMS_B responds with a 100 Trying provisional response
15						←				INVITE	IMS_B forwards INVITE to IBCF_B
16							→			100 Trying	IBCF_B responds with a 100 Trying provisional response
17					←					INVITE	IBCF_B forwards INVITE to IBCF_A
18						→				100 Trying	IBCF_A responds with a 100 Trying
19				,						INVITE	provisional response IBCF_A forwards INVITE to IMS_A
20										100 Trying	IMS_A responds with a 100 Trying
					>						provisional response
21			←							INVITE	IMS_A forwards INVITE to AS/IM_A
22				\rightarrow						100 Trying	AS/IM_A responds with a 100 Trying provisional response
23				→						INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24			←							100 Trying	IMS_A responds with a 100 Trying provisional response
25		←		_						INVITE	IMS_A forwards INVITE to UE_A
26				→						100 Trying	UE_A optionally responds with a 100 Trying provisional response
27	←	_									User A is informed of incoming two
28										180 Ringing	messages UE_A responds second INVITE with
				_						3 3	180 Ringing to indicate that invitation
											to an enhanced messaging session has reached the invited user
29			,							180 Ringing	IMS_A forwards 180 Ringing
											response to AS/IM_A
30				\rightarrow						180 Ringing	AS/IM_A returns, possibly modified, 180 Ringing response to IMS_A
31					>					180 Ringing	IMS_A forwards 180 Ringing
20					1						response to IBCF_A IBCF_A forwards 180 Ringing
32						→				180 Ringing	response to IBCF_B
33							→			180 Ringing	IBCF_B forwards 180 Ringing
34										180 Ringing	response to IMS_B IMS_B forwards 180 Ringing
								\rightarrow			response to AS/IM_B
35							←	_		180 Ringing	AS/IM_B returns, possibly modified, 180 Ringing response to IMS_B
36										180 Ringing	IMS_B forwards 180 Ringing
27						Ì				190 Dinging	response to IBCF_B IBCF_B forwards 180 Ringing
37					←	-				180 Ringing	response to IBCF_A
38					4					180 Ringing	IBCF_A forwards 180 Ringing
	I			ľ		ļ	l				response to IMS_A

s E S/ M B B C S I B C S A C S A C S A C S A C S A C S A C S A C S A C S A C S A C S A C S A C S A C S A <	ent	Comment	Message					n	Directio	0				Step
e A I S C C S I B				U	U		I M	I B	I R I	I M				
A A B B B B 39 40 180 Ringing IMS: A forwards 180 R response to UE_B. Message from users in the delivery notificatio message is in the delivery notificatio message is a deliver. In the deliver is				-										
39 180 Ringing INS_A forwards 180 R 40 40 MS_A forwards 180 R 41 MESSAGE UE_A sends MESSAGE 41 MESSAGE UE_A sends MESSAGE 42 MESSAGE IBC_F A forwards MESS 43 MESSAGE IBCF_A forwards MESS 44 MESSAGE IBCF_A forwards MESS 46 MESSAGE IBCF_A forwards MESS 47 MESSAGE IBCF_B forwards MESS 48 MESSAGE IBCF_B forwards MESS 49 MESSAGE IBCF_B forwards MESS 50 MESSAGE IBCF_B forwards MESS 51 MESSAGE IBCF_B forwards MESS 52 MESSAGE IBCF_B forwards MESS 53 MESSAGE IMS_B forwards MESS 54 MESSAGE IMS_A forwards MESS 55 MESSAGE IMS_A forwards MESS 56 MESSAGE IMS_A forwards 200 OK 57 S6 MESSAGE IMS_A forwards 200 OK 58 S0 IBCF_A forwards 200 OK IBCF_A forwards 200 OK 59 MES_B forwards 200 OK							В	-	-	-			-	
40 MESSAGE WE A sends MESSAG 41 MESSAGE WE A sends MESSAG 42 MESSAGE MESSAGE 42 MESSAGE MS A forwards MESS 43 MESSAGE MS A forwards MESS 44 MESSAGE MS A forwards MESS 46 MESSAGE MS A forwards MESS 47 MESSAGE IBCF A 48 MESSAGE IBCF A forwards MESS 49 MESSAGE IMS B 49 MESSAGE IMS B 50 MESSAGE IMS B 51 MESSAGE IMS CF a forwards MESS 52 MESSAGE IMS CF a forwards MESS 54 MESSAGE IMS A forwards MESS 55 MESSAGE IMS A forwards MESS 56 MESSAGE IMS A forwards MESS 56 MESSAGE IMS A forwards MESS 57 MESSAGE IMS A forwards 200 O 58 MESSAGE IMS A forwards 200 O 59 MESSAGE IMS A forwards 200 O 60 MES A forwards 200 O MES B forwards 200 O <	Ringing	IMS_A forwards 180 Ringin	180 Ringing	В	\rightarrow	В		В						39
41 message from user B 42 MESSAGE MS, A forwards MESS 43 MESSAGE MS, A forwards MESS 44 MESSAGE MS, A forwards MESS 44 MESSAGE MS, A forwards MESS 45 MESSAGE MS, B forwards MESS 46 MESSAGE MS, B forwards MESS 47 MESSAGE MS, B forwards MESS 48 MESSAGE MS, B forwards MESS 49 MESSAGE MS, B forwards MESS 50 MESSAGE MS, B forwards MESS 51 MESSAGE MS, A forwards MESS 52 MESSAGE MS, A forwards MESS 53 MESSAGE MS, A forwards MESS 54 MESSAGE MS, A forwards MESS 55 MS, A forwards 200 O MS, A forwards 200 O 56 MS, A forwards 200 O NK S, A forwards 200 O 56 MS, B forwards 200 O NK S, B forwards 200 O 57 S7 S6 200 OK BCF, B forwards 200 O 58 S9 200 OK BCF, B forwards 200 O NK S, B forwards 200 O <t< td=""><td></td><td>UE_A sends MESSAGE to with delivery notification of i</td><td>MESSAGE</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>40</td></t<>		UE_A sends MESSAGE to with delivery notification of i	MESSAGE											40
42 ASIM A 43 MESSAGE ASIM A returns, poss MESSAGE IIMS A 44 MESSAGE IIMS A 45 MESSAGE IIMS A 46 MESSAGE IIMS A 47 MESSAGE IBCF A forwards MESS IBCF B 48 MESSAGE IBCF B forwards MESS IBCF B 49 MESSAGE IIMS B forwards MESS IBCF B 50 MESSAGE IBCF A forwards MESS IBCF B 51 MESSAGE IBCF B forwards MESS IBCF A 52 MESSAGE IBCF B forwards MESS IBCF A 53 MESSAGE IBCF B forwards MESS IBCF A 54 MESSAGE IBCF B forwards MESS IBCF A 55 MESSAGE IBCF B forwards 200 G to IMS A forwards 200 G to IMS B forwards 200 G to IMS B forwards 200 G to IMS B forwards 200 G to IMS A forwards 200 G to IBCF A forwards 200 G to IBCF A forwards 200 G to IBCF A forwards 200 G to ISCF A forwards 200 G 61 MS A forwards 200 G to ISCF A forwards 200 G to ISCF A forwards 200 G to ISCF A forwards 200 G 62 C0 OK MS A forwards 200 G to ISCF A forwards 200 G to ISCF A forwards 200 G 63 C0 OK MS A forwards 200 G to ISCF A forwards 200 G			MESSAGE											41
43 MESSAGE to IMS A 44 MESSAGE IBCF A forwards MESS 45 MESSAGE IBCF B forwards MES 46 MESSAGE IBCF B forwards MESS 47 MESSAGE IBCF B forwards MESS 48 MESSAGE IBCF B forwards MESS 49 MESSAGE IBCF B forwards MESS 50 MESSAGE IBCF B forwards MESS 51 MESSAGE IBCF B forwards MESS 52 MESSAGE IBCF B forwards MESS 53 MESSAGE IBCF B forwards MESS 54 MESSAGE IBCF A forwards MESS 55 MESSAGE IBCF A forwards 200 O 56 MESSAGE IBCF A forwards 200 O 57 MESSAGE IBCF A forwards 200 O 58 S8 59 S9 60 MES B forwards 200 O 61 MES A forwards 200 O 62 MES B forwards 200 O 63 MES A forwards 200 O 63 MES A forwards 200 O		AS/IM_A									(
44 Harris Ha		MESSAGE to IMS_A									\longrightarrow			
45 IBCF_B 46 IBCF_B 47 IBCF_B 48 IBCF_B 49 IBCF_B 49 IBCF_B 50 IBCF_B 51 IBCF_B 52 IBCF_A 53 IBCF_A 54 IBCF_A 55 IBCF_A 56 IBCF_A 57 IBCF_A 58 IBCF_A 59 IBCF_B 60 IBCF_A 60 IBCF_A 61 IBCF_A 62 IBCF_A 63 IBCF_A 60 IBCF_A 60 IBCF_A 61 IBCF_A 62 IBCF_A 63 IBCF_A		IBCF_A								\rightarrow	-			
46 47 47 48 48 49 49 49 50 50 51 51 52 52 53 54 54 55 56 57 57 56 57 57 58 59 60 60 61 62 62 63		IBCF_B							\longrightarrow					
47 AS/IM_B 48 AS/IM_B returns, poss 49 MESSAGE to IMS_B 49 MESSAGE 50 IBCF_B 51 MESSAGE 52 MESSAGE 53 MESSAGE 54 MESSAGE 55 MESSAGE 56 MESSAGE 57 MESSAGE 58 S6 59 MESSAGE 60 MESSAGE 61 MESSAGE 62 MESSAGE 63 MESSAGE							•	\rightarrow						45
47 47 48 48 49 49 50 50 51 50 52 51 52 52 53 52 54 55 55 56 56 56 57 56 58 58 58 58 59 60 61 61 62 63	SAGE to	IMS_B forwards MESSAGE AS/IM_B	MESSAGE			→								46
48 49 49 49 50 50 51 51 52 52 52 53 54 55 56 56 56 56 57 56 58 58 58 58 59 60 61 61 62 63	sibly modified,	AS/IM_B returns, possibly n MESSAGE to IMS_B	MESSAGE				←							47
49 MESSAGE IBCF_B forwards MES 50 MESSAGE IBCF_A forwards MES 51 MESSAGE IMS_A forwards MESS 52 MESSAGE IMS_A forwards MESS 53 MESSAGE IMS_A forwards MESS 54 MESSAGE IMS_A forwards 200 OK 55 MIS_A MESSAGE 56 MESSAGE IMS_A forwards 200 OK 57 IBCF_A 200 OK 58 S8 200 OK 59 MIS_B forwards 200 OK IMS_B forwards 200 OK 60 MIS_B forwards 200 OK IMS_B forwards 200 OK 61 MIS_B forwards 200 OK IMS_B forwards 200 OK 62 MIS_A forwards 200 OK IBCF_A 63 MIS_A forwards 200 OK IBCF_A forwards 200 OK 63 MIS_A forwards 200 OK IBCF_A forwards 200 OK	SAGE to	IMS_B forwards MESSAGE	MESSAGE					←						48
50 MESSAGE IBCF_A forwards MESS 51 MESSAGE IMS_A 52 User B is informed that message was delivered 53 0 User B is informed that message was delivered 53 0 User B is informed that message was delivered 54 0 0 55 0 IBCF_A 56 0 IBCF_A 57 0 IBCF_B 58 0 IBCF_B 59 0 IBCF_B 60 0 IBCF_A 61 0 IBCF_A 62 0 0 63 0 IBCF_A forwards 200 O 63 0 IBCF_A	SSAGE to	IBCF_B forwards MESSAG	MESSAGE						←					49
51 MESSAGE IMS_A forwards MESS 52 User B is informed that message was delivered 53 200 OK UE_B responds MESS 54 200 OK IMS_A forwards 200 O 55 0K response 200 OK 56 200 OK IBCF_A 57 200 OK IBCF_B forwards 200 O 58 200 OK IBCF_B forwards 200 O 58 200 OK IBCF_B forwards 200 O 59 60 IMS_F forwards 200 O 61 61 00 OK IBCF_B forwards 200 O 62 200 OK IMS_A forwards 200 O 00 OK 63 00 OK IBCF_A forwards 200 O 00 OK 63 00 OK IBCF_B forwards 200 O 00 OK	SSAGE to	IBCF_A forwards MESSAG	MESSAGE							(50
53 200 OK UE_B responds MESS 54 200 OK UE_A responds 200 O 55 200 OK IBCF_A 56 200 OK IBCF_B 56 200 OK IBCF_B 57 200 OK IBCF_B forwards 200 O 58 200 OK IBCF_B forwards 200 O 59 200 OK IMS_B forwards 200 O 60 AS/IM_B returns, poss 61 00 OK IBCF_A forwards 200 O 10 IBCF_A 200 OK IBCF_B 200 OK IBCF_B forwards 200 O AS/IM_B returns, poss 200 OK IBCF_A forwards 200 O AS/IM_A 60 0 IBCF_A forwards 200 O 61 0 IBCF_A 62 0 0 IBCF_A forwards 200 O 63 0 IBCF_A forwards 200 O AS/IM_A 200 OK IBCF_A forwards 200 O AS/IM_A A 200 OK 200 OK IBCF_A forwards 200 O AS/IM_A returns, poss 63 0 OK AS/IM_A returns, poss	SAGE to UE_B	IMS_A forwards MESSAGE	MESSAGE		→						-			51
53 200 OK UE_B responds MESS OK response 54 200 OK IMS_A forwards 200 O IBCF_A 55 200 OK IBCF_A forwards 200 O IBCF_B 56 200 OK IBCF_B forwards 200 O to IBCF_B 57 200 OK IBCF_B forwards 200 O AS/IM_B 58 200 OK IMS_B forwards 200 O AS/IM_B 59 200 OK IMS_B forwards 200 O AS/IM_B 60 IBCF_B 61 00 OK IBCF_A forwards 200 O AS/IM_A 62 00 OK IBCF_A forwards 200 O AS/IM_A 63 00 OK IBCF_A forwards 200 O AS/IM_A		User B is informed that second		→	_									52
54 55 56 56 57 58 59 60 61 62 63	SAGE with 200	UE_B responds MESSAGE	200 OK		_	_				(k			53
55 56 56 57 57 58 59 60 61 62 63	OK response to	IMS_A forwards 200 OK res	200 OK								-			54
56 200 OK IBCF_B forwards 200 O 57 57 58 200 OK IMS_B forwards 200 O 59 200 OK AS/IM_B returns, poss 200 OK IMS_B forwards 200 O 60 IBCF_B 61 IBCF_A forwards 200 O 62 IBCF_A forwards 200 O 63 IBCF_A forwards 200 O	OK response	IBCF_A forwards 200 OK re	200 OK											55
57 58 58 59 60 61 62 63	OK response	IBCF_B forwards 200 OK re	200 OK											56
58 59 60 61 62 63	OK response to	IMS_B forwards 200 OK res	200 OK			→								57
59 200 OK IMS_B forwards 200 O 60 IBCF_B 200 OK IBCF_B forwards 200 O 61 200 OK IBCF_A 200 OK IBCF_A 62 200 OK IMS_A forwards 200 O 10 IMS_A 63 200 OK IMS_A forwards 200 O AS/IM_A		AS/IM_B returns, possibly n	200 OK				<u> </u>							58
60 200 OK IBCF_B forwards 200 OK 61 0 100 OK IBCF_A 62 0 0 100 OK 100 OK 63 0 0 0 100 OK 100 OK		200 OK response to IMS_B IMS_B forwards 200 OK res	200 OK				Ì	(59
61 ito IBCF_A 61 200 OK 62 ito IMS_A 63 200 OK	OK response	IBCF_B IBCF_B forwards 200 OK re	200 OK											60
62 to IMS_A 63 200 OK 63 200 OK Application 200 OK										,				61
63 AS/IM_A 200 OK AS/IM_A returns, poss														_
		AS/IM_A									(_
	-	ACK to IMS_A									\rightarrow			
		IMS_A forwards ACK to UE	200 OK									<		
messages from user B the 1-to-1 chat	B and opens												>	65
66 603 UE_A responds initial I DECLINE 603 DECLINE respons	se with SDP to	UE_A responds initial INVIT 603 DECLINE response wit indicate that the session has												66

Step				D	irectior	า				Message	Comment
	U	U	Α	1	I I		I	Α	UU		
	S	E	S/					S/	E s		
	e	Α	M		C C F F		S B	M	Ве		
	r A		A					B	r B		
67			/							603	IMS_A forwards 603 DECLINE
										DECLINE	response to AS/IM_A
68				•						603 DECLINE	AS/IM_A returns, possibly modified, 603 DECLINE response to IMS_A
69										603	IMS_A forwards 603 DECLINE
				\rightarrow						DECLINE	response to IBCF_A
70				_	\longrightarrow					603	IBCF_A forwards 603 DECLINE
71										DECLINE 603	response to IBCF_B IBCF_B forwards 603 DECLINE
<i>'</i> '					F	\longrightarrow				DECLINE	response to IMS_B
72										603	IMS_B forwards 603 DECLINE
							,			DECLINE	response to AS/IM_B
73							(-		603 DECLINE	AS/IM_B returns, possibly modified,
74										DECLINE 603	603 DECLINE response to IMS_B IMS_B forwards 603 DECLINE
					ť					DECLINE	response to IBCF_B
75					\square					603	IBCF_B forwards 603 DECLINE
70					•					DECLINE	response to IBCF_A
76				←						603 DECLINE	IBCF_A forwards 603 DECLINE response to IMS_A
77										603	IMS_A forwards 603 DECLINE
									7	DECLINE	response to UE_B
78				(_	ACK	UE_B acknowledges the receipt of
79										ACK	603 DECLINE for the initial INVITE IMS_A forwards ACK to IBCF_A
80				1						ACK	IBCF_A forwards ACK to IBCF_B
81					_	\longrightarrow				ACK	IBCF_B forwards ACK to IMS_B
82						-	;			ACK	IMS_B forwards ACK to AS/IM_B
83							(ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
84					÷					ACK	IMS_B forwards ACK to IBCF_B
85					.					ACK	IBCF_B forwards ACK to IBCF_A
86				←						ACK	IBCF_A forwards ACK to IMS_A
87			←							ACK	IMS_A forwards ACK to AS/IM_A
88				*						ACK	AS/IM_A returns, possibly modified,
89		<u> </u>								ACK	ACK to IMS_A IMS_A forwards ACK to UE_A
90		l`								200 OK	UE_A responds second INVITE with
				•							200 OK response with SDP to indicate that the session has been accepted and inform B-side with
											specific data for MSRP connection set up
91			←							200 OK	IMS_A forwards 200 OK response to AS/IM_A
92										200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
93				\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
94					\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
95						\longrightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
96						ŀ	;			200 OK	IMS_B forwards 200 OK response to AS/IM_B
97							(-		200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
98					÷					200 OK	IMS_B forwards 200 OK response to IBCF_B

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	U		
	S	E	S/	М	В	В	м	S/	E	S		
	е	Α	I	S A	C	C	S B	I	В	е		
	r A		M	A	F A	г В	в	B		r B		
99									I		200 OK	IBCF_B forwards 200 OK response
100				<u> </u>							200 OK	to IBCF_A IBCF_A forwards 200 OK response
101											200 OK	to IMS_A IMS_A forwards 200 OK response to
									\rightarrow			UE_B
102				←			_				ACK	UE_B acknowledges the receipt of 200 OK for INVITE
103					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
104						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
105							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
106								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
107							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
108						←					ACK	IMS_B forwards ACK to IBCF_B
109					←						ACK	IBCF_B forwards ACK to IBCF_A
110				←							ACK	IBCF_A forwards ACK to IMS_A
111			←								ACK	IMS_A forwards ACK to AS/IM_A
112				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
113		←									ACK	IMS_A forwards ACK to UE_A
114	←	_			_		_	_	_	→		Users perform chatting (see clause 5.3.1 Chat 1 to 1 via MSRP)
115												Continue UC_RCS_4_R (90A-115B)

4.5.3.3 Switching to 1-to-many chat

4.5.3.3.1 Switching to 1-to-many chat - interworking

Interoperability Test Description										
Identifier:	TD_IMS_CHAT_0007									
Summary:	IMS network supports 1-to-many IM/Chat service and messages exchange between two users in their home network can be performed. User A switching 1-to-1 chat to 1-to-many chat by inviting User C									
Configuration:	CF_INT_AS									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)								
	TD_MSRP_CHAT_0002 RFC 4975 [10], clauses 5.4, 7.1 and 7.2									
Use Case ref.:	UC_RCS_7_I & UC_MSRP_02									
Pre-test conditions:	 networks as per TS 186 011-2 [UE_A is registered in IMS_A op UE_B and UE_C are registered table 1 UE_A, UE_B and UE_C shall set UE_A is optionally configured to 	P bearers established to their respective IMS 9], clause 4.2.1 tionally using userPRES according to table 1 in IMS_B optionally using userPRES according to upport MSRP o receive notifications with watcher information ence information of UE_B and UE_C AS_A AS_B								

	Interoperability Test Description								
 IMS 	A is within the trust domain of IMS_B								
	A, UE_C and UE_B have already performed capability discovery process								
	_A not configured for topology hiding								
Step									
1	User A selects User B in the phone address book and sends him an initial								
	message with MSRP indication								
2	User B is informed of incoming message								
3	Jser A is informed that initial message was delivered to user B								
4	User B reads the initial message from user A and opens the 1-to-1 chat								
5	Users perform 1-to-1 chatting								
6	User A initiates a 1-to-many Chat with User B and User C by sending initial								
	message								
7	User A is informed that the 1-to-many Chat is established								
8	User B is informed of incoming invitation from User A to join the 1-to-many								
	Chat								
9	User B reads the initial message and accepts the 1-to-many Chat invitation								
10	User A is notified with list of 1-to-many Chat participants								
11	User B is notified with list of 1-to-many Chat participants								
12	Users perform messaging in the 1-to-many Chat (MSRP session)								
13	User B leaves the 1-to-many Chat								
14	User B is informed that he has left the 1-to-many Chat								
15	User A is notified that User B has left the 1-to-many Chat								
16A	User A leaves the 1-to-many Chat								
	User C leaves the 1-to-many Chat								
	User A is informed that the 1-to-many Chat has ended								
	User B is informed that the 1-to-many Chat has ended								
	User C is informed that the 1-to-many Chat has ended								
110									
Check									
U									
1	TP_IMS_5107_03 in CFW step 41 (CANCEL):								
-	ensure that {								
	when { UE_A sends CANCEL to UE_B }								
	then { IMS_B receives the CANCEL								
	not containing Route_header								
	indicating the S-CSCF_SIP_URI of IMS_A								
	}								
1									
	 UE_ IMS Step 1 2 3 4 5 6 7 8 9 10 11 12 13 								

Comment

				Diro	ction				
U	U	Α	I	l			Α	U	U
S	U E A	S/	M S A	В	В	M S B	A S/	U E B	s e
s e	Α		S	C	C	S		В	е
r A		M A	A	B C F A	B C F B	в	M B		r B
Ê									Ī
									Ì
	\rightarrow								
			í						
	,								
	(
		←							
			→						
			\rightarrow						
	÷								
	Ì								
←	-								
			\rightarrow						
		←							
				→					
			/						
					\rightarrow				
				<u> </u>					
						~			
					←				
									
	1		1						1

Step

2

Message

S		
e r		
В		
	-	Follow UC_RCS_4_I (1-68) User A initiates a 1-to-many Chat
		with User B and User C by sending
		initial message
	INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM
		CONFERENCE FACTORY URI,
		MIME resource-list body including
		invited IM Users, the first SDP offer
		indicating all specific data for MSRP connection set up and the
		identity of User B with Session-
		Replaces header (CheckMSR1)
	100 Trying	IMS_A responds with a 100 Trying provisional response
	INVITE	IMS_A forwards INVITE to
		AS/IM_A
	100 Trying	AS/IM_A responds with a 100 Trying provisional response
	200 OK	AS/IM_A responds INVITE with
	200 011	200 OK response with IM session
		Identity allocated for the current 1-
		to-many Chat to indicate that the
		session has been accepted and SDP to inform A-side with specific
		data for MSRP connection set up
	200 OK	IMS_A forwards 200 OK response
		to AS/IM_A User A is informed that the 1-to-
		many Chat is accepted
	ACK	UE_A acknowledges the receipt of 200 OK for INVITE
	ACK	IMS_A forwards ACK to AS/IM_A
	INVITE	AS/IM_A sends INVITE to UE_B
		with IM session identity (allocated
		for the current 1-to-many Chat), IM address of the Inviting IM UE
		(UE_A) and Session-Replaces
		header with the original 1-to-1
	100 T :	session identity
	100 Trying	IMS_A responds with a 100 Trying provisional response
	INVITE	IMS_A forwards INVITE to IBCF_A
	100 Trying	IBCF_A responds with a 100 Trying
		provisional response
	INVITE	IBCF_A forwards INVITE to IBCF_B
	100 Trying	IBCF_B responds with a 100 Trying
	INVITE	provisional response IBCF_B forwards INVITE to IMS_B
	100 Trying	IMS_B responds with a 100 Trying
		provisional response
	INVITE	IMS_B forwards INVITE to AS/IM_B
	100 Trying	AS/IM_B responds with a 100 Trying provisional response
	INVITE	AS/IM_B returns, possibly
		modified, INVITE to IMS_B
	100 Trying	IMS_B responds with a 100 Trying provisional response
	INVITE	IMS_B forwards INVITE to UE_B

Step					Direc	tion					Message	Comment
4000	U	U	Α	Ι	1		Ι	Α	U	U		
	S	E	S/	M	В	В	М	S/	E	S		
	e	Α	I	S A	C F	C F	S B	I	В	e		
	r A		M A	A	F	Б		M B		r B		
25							└ <u></u> ←		_		100 Trying	UE_B optionally responds with a 100 Trying provisional response
26										→		User B is informed of incoming invitation from User A to join the 1- to-many Chat
27												User B reads the initial message and accepts the 1-to-many Chat invitation
28							<				200 OK	UE_B responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific data for MSRP connection set up
29								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
30							←	_			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
31						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
32					←	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
33				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
34			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
35				→							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
36					→						ACK	IMS_A forwards ACK to IBCF_A
37						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
38							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
39								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
40							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
41									\rightarrow		ACK	IMS_B forwards ACK to UE_B
42	<		-*						→			Users perform messaging in the 1- to-many Chat (see clause 5.3.2.1 Chat 1 to many via MSRP -
43							←				BYE	Interworking) UE_B releases the 1-to-1 IM
43A											BYE	session with BYE IMS_B forwards BYE to AS/IM_B
43A 44							<u> </u>				BYE	AS/IM_B returns, possibly
45											BYE	modified, BYE to IMS_B IMS_B forwards BYE to IBCF_B
45 46					<u> </u>						BYE	IBCF_B forwards BYE to IBCF_A
46				<u> </u>		7					BYE	IBCF_B forwards BYE to IBCF_A
47			4								BYE	IMS_A forwards BYE to AS/IM_A
48 49											BYE	AS/IM_A returns, possibly
+3				\rightarrow								modified, BYE to IMS_A
50		←									BYE	IMS_A forwards BYE to UE_A
51				\rightarrow							200 OK	UE_A sends 200 OK for BYE
52			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
53				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
54					→						200 OK	IMS_A forwards 200 OK response to IBCF_A

Step					Direc	tion					Message	Comment
	U	U E	A S/	I M	I B	I B	I	A S/	UE	U		
	s e	Ā	5/ 	S	В С	Б С	S	5/ 	B	s e		
	r		М	A	F	F	В	м		r		
55	Α		A		Α	В		В		В	200 OK	IBCF_A forwards 200 OK response
55						\rightarrow					200 OK	to IBCF_B
56							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
57								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
58											200 OK	AS/IM_B returns, possibly
							<					modified, 200 OK response to IMS_B
59									\rightarrow		200 OK	IMS_B forwards 200 OK response to UE_B
60				→							SUBSCRIBE	UE_A subscribes to the conference event package
61			←								SUBSCRIBE	IMS_A forwards SUBCRIBE to AS/IM_A
62				→							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
63		←									200 OK	IMS_A forwards 200 OK response to UE_A
64											NOTIFY	AS/IM_A sends NOTIFY to UE_A
				\rightarrow								with list of 1-to-many Chat
65		-									NOTIFY	participants IMS_A forwards the NOTIFY to
66												UE_A User A is notified with list of 1-to-
												many Chat participants
67				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
68			←								200 OK	IMS_A forwards the 200 OK
69							~				SUBSCRIBE	response to AS/IM_A UE_B subscribes to the conference
70											SUBSCRIBE	event package IMS_B forwards SUBSCRIBE to
71								1			SUBSCRIBE	AS/IM_B AS/IM_B returns, possibly
							<					modified, SUBSCRIBE to IMS_B
72						←					SUBSCRIBE	IMS_B forwards SUBSCRIBE to IBCF_B
73					←						SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IBCF_A
74				←	_						SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IMS_A
75			(SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
76				\rightarrow							200 OK	AS/IM_A sends 200 OK for
77					→						200 OK	SUBSCRIBE IMS_A forwards 200 OK response
78						\rightarrow					200 OK	to IBCF_A IBCF_A forwards 200 OK response
79							_				200 OK	to IBCF_B IBCF_B forwards 200 OK response
80											200 OK	to IMS_B IMS_B forwards 200 OK response
								_				to AS/IM_B
81							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to
82											200 OK	IMS_B IMS_B forwards 200 OK response
												to UE_B

Step					Dire	ction					Message	Comment
•	U s e r	U E A	A S/ I M	I M S A	I B C F	I B C F	I M S B	A S/ I M	U E B	U s e r		
	Α		Α		Α	В		В		В		
83				→							NOTIFY	AS/IM_A sends NOTIFY to UE_B with list of 1-to-many Chat participants
84					\rightarrow						NOTIFY	IMS_A forwards BYE to IBCF_A
85						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
86							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
87								\rightarrow			NOTIFY	IMS_B forwards BYE to AS/IM_B
88							←				NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
89									\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
90									_	→		User B is notified with list of 1-to- many Chat participants
91							←				200 OK	UE_B sends 200 OK for NOTIFY
92								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
93							←	_			200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
94						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
95					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
96				\leftarrow							200 OK	IBCF_A forwards 200 OK response to IMS_A
97			\leftarrow								200 OK	IMS_A forwards 200 OK response to AS/IM_A
98	←		*							→		Users perform messaging in the 1- to-many Chat (see clause 5.3.2.1 Chat 1 to many via MSRP - Interworking)
99												Continue UC_RCS_6_I (80A-116B)

4.5.3.3.2 Switching to 1-to-many chat - roaming (optional)

	Interoperability Test	Description							
Identifier:	TD_IMS_CHAT_0008	·							
Summary:	IMS network supports 1-to-many IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User								
	B switching 1-to-1 chat to 1-to-many c	•							
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119							
		(item 1 in 8 th numbered list)							
	TD_MSRP_CHAT_0002	TD_MSRP_CHAT_0002 RFC 4975 [10],							
		clauses 5.4, 7.1 and 7.2							
Use Case ref.:	UC_RCS_7_R & UC_MSRP_02_R								
Pre-test	 HSS of IMS_A and of IMS B is co 	nfigured according to table 1							
conditions:	 UE_A, UE_C and UE_B have IP I networks as per TS 186 011-2 [9] 	bearers established to their respective IMS , clause 4.2.1							
	 UE_A is registered in IMS_A optic 	onally using userPRES according to table 1							
	 UE_B and UE_C are registered in IMS_B via IMS_A optionally using userPRES according to table 1 								
	 UE_A, UE_B and UE_C shall sup 	port MSRP							
		eceive notifications with watcher information							
	 UE_A is authorized to see present 	ce information of UE_B and UE_C							

		Interoperability Test Description							
	• IMS	A is configured to contact AS_A							
		B is configured to contact AS_A							
		B is optionally configured for reactive authorization							
		A is within the trust domain of IMS_B							
		A, UE_C and UE_B have already performed capability discovery process							
	● IMS	_A not configured for topology hiding							
Test Sequence:	Step								
	1	User B selects User A in the phone address book and sends him an initial							
		message with MSRP indication							
	2	User A is informed of incoming message							
	3	User B is informed that initial message was delivered to user A							
	4	User A reads the initial message from user B and opens the 1-to-1 chat							
	5	Users perform 1-to-1 chatting (MSRP session)							
	6	User B initiates a 1-to-many Chat with User A and User C by sending initial							
		message							
	7	User B is informed that the 1-to-many Chat is established							
	8	User A is informed of incoming invitation from User B to join the 1-to-many							
		Chat							
	9	User A reads the initial message and accepts the 1-to-many Chat invitation							
	10	User B is notified with list of 1-to-many Chat participants							
	11	User A is notified with list of 1-to-many Chat participants Users perform messaging in the 1-to-many Chat (MSRP session)							
	12								
	13A	User A leaves the 1-to-many Chat							
	13B	User B leaves the 1-to-many Chat							
	14A	User A is informed that he has left the 1-to-many Chat							
	14B	User B is informed that he has left the 1-to-many Chat							
	15A	User B is notified that all other users have left the 1-to-many Chat							
	15B	User A is notified that all other users have left the 1-to-many Chat							
	16A	User B leaves the 1-to-many Chat							
	16A	User A leaves the 1-to-many Chat							
	17A	User B is informed that the 1-to-many Chat has ended							
	17A	User A is informed that the 1-to-many Chat has ended							
	П								
Conformance	Check								
Conformance Criteria:	CHECK								
Criteria.	1								
	1	TP_IMS_5107_03 in CFW step 56 (CANCEL):							
		ensure that {							
		when { UE_A sends CANCEL to UE_B }							
		then { IMS_B receives the CANCEL							
		not containing Route_header							
		indicating the S-CSCF_SIP_URI of IMS_A							
		}							

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S/ I M	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1 2									-			Follow UC_RCS_4_R (1-89) User B initiates a 1-to-many Chat with User A and User C by sending initial message
3											INVITE	UE_B sends INVITE to IMS_A with Request-URI set to IM CONFERENCE FACTORY URI, MIME resource-list body including invited IM Users, the first SDP offer
												indicating all specific data for MSRP connection set up and the identity of User A with Session- Replaces header

124	
-----	--

Step					Direc	tion					Message	Comment
	U	L L	A	I		Ι	I	A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E	s e		
	r	~	Ň	Ă	F	F	В	. м		r		
	Α		Α		Α	В		В		в		
4									\rightarrow		100 Trying	IMS_A responds with a 100 Trying provisional response
5					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
6				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
7						\rightarrow					INVITE	IBCF_A forwards INVITE to
8					-						100 Trying	IBCF_B IBCF_B responds with a 100 Trying
9							\rightarrow				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
10						←					100 Trying	IMS_B responds with a 100 Trying provisional response
11								→			INVITE	IMS_B forwards INVITE to AS/IM_B
12							←				100 Trying	AS/IM_B responds with a 100
13											200 OK	Trying provisional response AS/IM_B responds INVITE with
10							€—					200 OK response with IM session Identity allocated for the current 1- to-many Chat to indicate that the session has been accepted and SDP to inform A-side with specific
1.4											200 OK	data for MSRP connection set up
14						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
15					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
16				←							200 OK	IBCF_A forwards 200 OK response
17											200 OK	to IMS_A IMS_A forwards 200 OK response
18									-	>		to UE_B User B is informed that the 1-to-
19				<i></i>						-	ACK	many Chat is established UE_B acknowledges the receipt of
				Ì							1.01/	200 OK for INVITE
20					→						ACK	IMS_A forwards ACK to IBCF_A
21 22						7					ACK ACK	IBCF_A forwards ACK to IBCF_B IBCF_B forwards ACK to IMS_B
22							~				ACK	IMS_B forwards ACK to AS/IM_B
23											INVITE	AS/IM_B sends INVITE to UE_A with IM session identity (allocated
							←					for the current 1-to-many (direction address of the Inviting IM UE (UE_B) and Session-Replaces header with the original 1-to-1 session identity
25								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
26			1			←					INVITE	IMS_B forwards INVITE to IBCF_B
27						È	\rightarrow				100 Trying	IBCF_B responds with a 100 Trying
28											INVITE	provisional response IBCF_B forwards INVITE to
29					Ĺ	_					100 Trying	IBCF_A IBCF_A responds with a 100 Trying
30											INVITE	provisional response IBCF_A forwards INVITE to IMS_A
30 31											100 Trying	IMS_A responds with a 100 Trying
32					1						INVITE	provisional response IMS_A forwards INVITE to
52			←	\neg								AS/IM_A

Step					Direc	tion					Message	Comment
otep	U	U	Α		I		I	Α	U	U	message	Comment
	S	Ē	S/	M	В	В	M	S/	Ē	S		
	е	Α	I	S	С	С	S	Ι	В	е		
	r		M	Α	F A	F B	В	M B		r B		
33	A		A		A			P			100 Trying	AS/IM_A responds with a 100
00				\rightarrow							100 Hying	Trying provisional response
34				``							INVITE	AS/IM_A returns, possibly
				1								modified, INVITE to IMS_A
35			←								100 Trying	IMS_A responds with a 100 Trying provisional response
36		(INVITE	IMS_A forwards INVITE to UE_A
37											100 Trying	UE_A optionally responds with a
_				→							, , ,	100 Trying provisional response
38												User A is informed of incoming
	¥											invitation from user B to join the 1- to-many Chat
39												User A reads the initial message
00		→										and accepts the 1-to-many Chat
												invitation
40											200 OK	UE_A responds INVITE with 200
				``								OK response with SDP to indicate that the session has been accepted
				1								and inform AS/IM_A with specific
												data for MSRP connection set up
41			<u> </u>								200 OK	IMS_A forwards 200 OK response
- 10			Ì								000.01/	to AS/IM_A
42											200 OK	AS/IM_A returns, possibly modified, 200 OK response to
				1								IMS_A
43					`						200 OK	IMS_A forwards 200 OK response
												to IBCF_A
44						→					200 OK	IBCF_A forwards 200 OK response
45											200 OK	to IBCF_B IBCF_B forwards 200 OK response
75							\rightarrow				200 01	to IMS B
46								``			200 OK	IMS_B forwards 200 OK response
								1				to AS/IM_B
47							←				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
48						<u> </u>					АСК	IMS_B forwards ACK to IBCF_B
49					<u> </u>	_`					ACK	IBCF_B forwards ACK to IBCF_A
50				←	_						ACK	IBCF_A forwards ACK to IMS_A
51			←								ACK	IMS_A forwards ACK to AS/IM_A
52											ACK	AS/IM_A returns, possibly
				1							1.01/	modified, ACK to IMS_A
53		< <u>←</u>									ACK	IMS_A forwards ACK to UE_A
54				\rightarrow							BYE	UE_A releases the 1-to-1 IM session with BYE
55			←								BYE	IMS_A forwards BYE to AS/IM_A
56			ľ								BYE	AS/IM_A returns, possibly
				_								modified, BYE to IMS_A
57					→						BYE	IMS_A forwards BYE to IBCF_A
58						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
59							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
60								→			BYE	IMS_B forwards BYE to AS/IM_B
61							←	_			BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
62						<u> </u>					BYE	IMS_B forwards BYE to IBCF_B
63					←	_`					BYE	IBCF_B forwards BYE to IBCF_A
64				←	_						BYE	IBCF_A forwards BYE to IMS_A
65									\rightarrow		BYE	IMS_A forwards BYE to UE_B
66				←		_					200 OK	UE_B sends 200 OK for BYE
I	•	'	i.	I			•	•	•	•		-

Step					Direc	tion					Message	Comment
	U	U	A	I			I	A	U E	U		
	s e	E A	S/	M S	B C	B C	M S	S/	B	s e		
	r		M	Ă	F	F	В	M		r		
67	Α		A		A	В		В	<u> </u>	В	200 OK	IMS_A forwards 200 OK response
07					\rightarrow						200 OK	to IBCF_A
68						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
69							\rightarrow				200 OK	IBCF_B forwards 200 OK response
70								_			200 OK	to IMS_B IMS_B forwards 200 OK response
71											200 OK	to AS/IM_B AS/IM_B returns, possibly
							←					modified, 200 OK response to IMS_B
72						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
73					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
74				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
75			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
76											200 OK	AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
77		←									200 OK	IMS_A forwards 200 OK response to UE_A
78				←							SUBSCRIBE	UE_B subscribes to the conference event package
79					→						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
80						→					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
81							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
82								→			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
83							←				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
84						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
85					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
86				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
87									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
88							←	-			NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants
89						←					NOTIFY	IMS_B forwards NOTIFY to IBCF_B
90					←						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
91				←							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
92									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
93									-	→		User B is notified with list of 1-to- many Chat participants
94				<					_		200 OK	UE_B responds with 200 OK to IMS_A
95					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
	I	I	I	1	I	I	I	1	1	1	L	

Step					Dire	ction					Message	Comment
	U	U	Α		I	Ι	I	Α	U	U		
	S	E A	S/	M S	B C	BC	M S	S/	E B	S		
	e r	A	M	A	F	F	B	M	D	e r		
	Å		A	~	A	В		B		B		
96						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
97							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
98								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
99				→							SUBSCRIBE	UE_A subscribes to the conference event package
100			←								SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
101				→							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
102					\rightarrow						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
103						→					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to
104							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to
105								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
106							←				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
107						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
108					←	\neg					200 OK	IBCF_B forwards 200 OK response to IBCF_A

Step					Direct	on					Message	Comment
	U	U	Α	Ι	I	Ι	Ι	Α	U	U		
	S	E A	S/	м	В	В	M	S/	E B	S		
	e r	A	M	S A	C F	C F	S B	M	в	e r		
	Ă		A	~	A	В	Б	B		B		
109				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
110			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
111				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
112		←									200 OK	IMS_A forwards 200 OK response to UE_A
113							←				NOTIFY	AS/IM_B sends NOTIFY to UE_A with list of 1-to-many Chat participants
114						←					NOTIFY	IMS_B forwards BYE to IBCF_B
115					←						NOTIFY	IBCF_B forwards BYE to IBCF_A
116				←							NOTIFY	IBCF_A forwards BYE to IMS_A
117			←	_							NOTIFY	IMS_A forwards BYE to AS/IM_A
118				\rightarrow							NOTIFY	AS/IM_A returns, possibly modified, BYE to IMS_A
119		←		_							NOTIFY	IMS_A forwards BYE to UE_A
120	←	-										User A is notified with list of 1-to- many Chat participants
121			_	\rightarrow							200 OK	UE_A sends 200 OK for NOTIFY
122			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
123				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
124					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
125						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
126							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
127								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
128	-							*		\rightarrow		Users perform messaging in the 1- to-many Chat (see clause 5.3.2.2 Chat 1 to many via MSRP - Roaming)
129												Continue UC_RCS_6_R (104A- 146B)

4.5.3.4 File transfer within 1-to-1 chat

4.5.3.4.1 File transfer within 1-to-1 chat - interworking

	Interoperability 1	Test Description									
Identifier:	TD_IMS_CHAT_0009										
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed. User A starts file transfer with User B										
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119									
	(item 1 in 8 th numbered list)										
	TD_MSRP_FILE_0001 RFC 4975 [10],										
	clauses 5.4, 7.1 and 7.2										

		Interoperability Test Description									
		RFC 5547 [13]									
Use Case ref.:	UC_RCS	_5_I & UC_MSRP_04									
Pre-test conditions:	 UE_A per T UE_A UE_A UE_A UE_A IMS_ IMS_E IMS_ IMS_ UE_A 	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information UE_A, use and use of the presence information of UE_B UE_A, use and use of the contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive authorization IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process 									
Test Sequence:	Step										
	1 2 3 4 5 6 7 8 9 10 11 12 13 14A 14B 15A 15B	User A selects User B in the phone address book and sends him an initial message with MSRP indication User B is informed of incoming message User A is informed that initial message was delivered to user B User B reads the initial message from user A and opens the 1-to-1 chat Users perform chatting User A initiates a file transfer to user B User B is informed of incoming file and accepts the transfer User A is informed that file transfer has been accepted by user B File transfer starts (MSRP session) File transfer completed (size checked) User B is informed that file transfer completed User A is informed that file transfer completed User A is informed that file transfer completed User A is informed that file transfer completed Users continue chatting (MSRP session) User A closes the 1-to-1 chat User B closes the 1-to-1 chat with user B is closed User A is informed that 1-to-1 chat with user A is closed									
	150										
Conformance Criteria:	Check 1	TP_IMS_5107_03 in CFW step 41 (CANCEL): ensure that { when { UE_A sends CANCEL to UE_B } then { IMS_B receives the CANCEL not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A }									

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	I	Α	U	υ		
	S	E	S/	M	В	В	M	S/	E	S		
	е	Α	I	S	C	C	S	I	В	е		
	r		М	A	F	F	В	М		r		
	<u>A</u>		Α		Α	В		В		В		
1												Follow UC_RCS_4_I (1-68)
2		_										User A initiates a file transfer to user
		1										B (MSRP session)
3											INVITE	UE_A sends INVITE to IMS_A to
				``								establish a new session with the
												SDP offer indicating all specific data
												for a new MSRP connection set up
4		/									100 Trying	IMS_A responds with a 100 Trying
												provisional response

Step					Directi	on				-	Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	UE	U s		
	e	A	3/ 	S	Č	C	S	3/ 	B	e		
	r		М	Α	F	F	в	М		r		
5	Α		A		A	В		В		В	INVITE	IMS_A forwards INVITE to AS/IM_A
6											100 Trying	AS/IM_A responds with a 100
				→								Trying provisional response
7				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
8											100 Trying	IMS_A responds with a 100 Trying
												provisional response
9 10					*						INVITE 100 Trying	IMS_A forwards INVITE to IBCF_A IBCF_A responds with a 100 Trying
10				←							Too Trying	provisional response
11						>					INVITE	IBCF_A forwards INVITE to IBCF_B
12					←	-					100 Trying	IBCF_B responds with a 100 Trying
13							→				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
14											100 Trying	IMS_B responds with a 100 Trying
												provisional response
15 16								→			INVITE 100 Trying	IMS_B forwards INVITE to AS/IM_B AS/IM_B responds with a 100
10							←				Too Trying	Trying provisional response
17							<u> </u>				INVITE	AS/IM_B returns, possibly modified,
18											100 Trying	INVITE to IMS_B IMS_B responds with a 100 Trying
10								→			Too Trying	provisional response
19									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
20							←				100 Trying	UE_B optionally responds with a 100 Trying provisional response
21												User B is informed of incoming file
												and accepts the transfer
22											200 OK	UE_B responds INVITE with 200 OK response with SDP to indicate
							←					that the session has been accepted
												and inform A-side with specific data
23											200 OK	for a new MSRP connection set up IMS_B forwards 200 OK response
								→				to AS/IM_B
24							←				200 OK	AS/IM_B returns, possibly modified,
25											200 OK	200 OK response to IMS_B IMS_B forwards 200 OK response
						<u> </u>						to IBCF_B
26					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
27				,							200 OK	IBCF_A forwards 200 OK response
												to IMS_A
28			←	_	1						200 OK	IMS_A forwards 200 OK response to AS/IM_A
29					1						200 OK	AS/IM_A returns, possibly modified,
					1						000.01/	200 OK response to IMS_A
30		←		-	1						200 OK	IMS_A forwards 200 OK response to UE_A
31	<u> </u>											User A is informed that file transfer
												has been accepted by user B
32				→							ACK	UE_A acknowledges the receipt of 200 OK for INVITE
33			←	_	1						ACK	IMS_A forwards ACK to AS/IM_A
34				→	1						ACK	AS/IM_A returns, possibly modified,
35					*						ACK	ACK to IMS_A IMS_A forwards ACK to IBCF_A
36						*					ACK	IBCF_A forwards ACK to IBCF_B
37							→				ACK	IBCF_B forwards ACK to IMS_B
	I	•	1		1		•		I	i	L	

Step					Direc	tion					Message	Comment
	U	U	A	1		1 –		A	U	U		
	S	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	e r	A	м	A	F	F	B	M	Б	r		
	Â		A		A	В	_	В		В		
38								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									\rightarrow		ACK	IMS_B forwards ACK to UE_B
41								+	+	→		File transfer starts (see clause 5.3.3 Image data via MSRP - CheckMSRP3)
42												File transfer completed (size checked) and users can continue with 1 to 1 chat (see clause 5.3.1 Chat 1 to 1 via MSRP- CheckMSRP3)
43				→							BYE	UE_A releases the file transfer session with BYE
44			←								BYE	IMS_A forwards BYE to AS/IM_A
45				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
46					→						BYE	IMS_A forwards BYE to IBCF_A
47						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
48							→				BYE	IBCF_B forwards BYE to IMS_B
49								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
50							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
51									\rightarrow		BYE	IMS_B forwards BYE to UE_B
52									-	→		User B is informed that file transfer completed
53							←				200 OK	UE_B sends 200 OK for BYE
54								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
55							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
56						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
57					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
58				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
59			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
60				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
61		←									200 OK	IMS_A forwards 200 OK response to UE_A
62		-										User A is informed that file transfer completed
63	←									—		Users continue chatting
64												Continue UC_RCS_4_I (69A-88B)

4.5.3.4.2 File transfer within 1-to-1 chat - roaming (optional)

	Interoperability Test Description									
Identifier:	TD_IMS_CHAT_0010									
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts file transfer with User A									
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_A and IMS_B									

		Interoperability Tes	t Description							
References	Test Pur		Specification Reference							
	TP_IMS		TS 124 229 [1], clause 5.4.3.2 ¶119							
			(item 1 in 8 th numbered list)							
		P_FILE_0001	RFC 4975 [10],							
	ID_WOR									
			clauses 5.4, 7.1 & 7.2							
Use Case ref.:		RFC 5547 [13] _5_R & UC_MSRP_04								
	KOO									
Pre-test	 HSS 	of IMS_A and of IMS B is c	onfigured according to table 1							
conditions:	 UE_A and UE_B have IP bearers established to their respective IMS networks as 									
		S 186 011-2 [9], clause 4.2								
			ionally using userPRES according to table 1							
			IMS_A optionally using userPRES according to							
	table									
		A, UE_B and UE_C shall su								
			receive notifications with watcher information							
		A is authorized to see prese								
		A is configured to contact A								
		_B is configured to contact A								
		B is optionally configured for								
	 IMS_ 	A is within the trust domain	of IMS_B							
	• UE /	A and UE B have already p	erformed capability discovery process							
		A not configured for topolog								
Test Sequence:	Step									
	1		he phone address book and sends him an initial							
		message								
	2	User A is informed of inco								
	3		tial message was delivered to user A							
	4	User A reads the initial me	essage from user B and opens the 1-to-1 chat							
	5	Users perform chatting								
	6	User B initiates a file trans								
	7	User A is informed of inco	ming file and accepts the transfer							
	8		e transfer has been accepted by user B							
	9	File transfer starts								
	10	File transfer completed (si	ze checked)							
	11	User A is informed that file								
	12	User B is informed that file								
	13	Users continue chatting								
	14A	User B closes the 1-to-1 c	hat							
	14A 14B	User A closes the 1-to-1 c								
			at 1-to-1 chat with user A is closed							
	15A									
	15B	User A is informed that the	at 1-to-1 chat with user B is closed							
Conformance	Check									
Criteria:	Chicon									
	1	TP_IMS_5107_03 in CFW	/ step 56 (CANCEL):							
	-	ensure that {								
		when { UE_A sends CAN	ICFL to UF B }							
		then { IMS_B receives th								
		not containing F								
			-CSCF_SIP_URI of IMS_A							
		<i>y</i>								
		Ĵ								

Step					Direc	tion	1		1	•	Message	Comment
	U s	U E	A S/	I M	l B	I B	M	A S/	UE	U s		
	e	A	3/ 	S	Č	C	S	3/	B	e		
	r		М	Α	F	F	В	М		r		
1	A		A		A	В		В		B		Follow UC_RCS_4_R (1-89)
2												User B initiates a file transfer to user
									-			A (MSRP session)
3											INVITE	UE_B sends INVITE to IMS_A to
				←	_							establish a new session with the SDP offer indicating all specific data
												for a new MSRP connection set up
4					_				\rightarrow		100 Trying	IMS_A responds with a 100 Trying
5					`						INVITE	provisional response IMS_A forwards INVITE to IBCF_A
6					7						100 Trying	IBCF_A responds with a 100 Trying
Ũ				←							loo nying	provisional response
7						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
8					←						100 Trying	IBCF_B responds with a 100 Trying
9							_				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
10							1				100 Trying	IMS_B responds with a 100 Trying
						(provisional response
11								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
12							←	_			100 Trying	AS/IM_B responds with a 100 Trying
13											INVITE	provisional response AS/IM_B returns, possibly modified,
							(INVITE to IMS_B
14								\rightarrow			100 Trying	IMS_B responds with a 100 Trying
15						,					INVITE	provisional response IMS_B forwards INVITE to IBCF_B
16											100 Trying	IBCF_B responds with a 100 Trying
							\rightarrow					provisional response
17					←						INVITE	IBCF_B forwards INVITE to IBCF_A
18						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying
19				<u> </u>							INVITE	provisional response IBCF_A forwards INVITE to IMS_A
20											100 Trying	IMS_A responds with a 100 Trying
					→							provisional response
21			<i>←</i>								INVITE	IMS_A forwards INVITE to AS/IM_A
22				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
23											INVITE	AS/IM_A returns, possibly modified,
				_								INVITE to IMS_A
24			←								100 Trying	IMS_A responds with a 100 Trying
25		<u> </u>									INVITE	provisional response IMS_A forwards INVITE to UE_A
26											100 Trying	UE_A optionally responds with a 100
										_		Trying provisional response
27	←	-										User A is informed of incoming file
28											200 OK	and accepts the transfer UE_A responds INVITE with 200 OK
												response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for a new MSRP connection set up
29			,								200 OK	IMS_A forwards 200 OK response to
												AS/IM_A
30				\rightarrow							200 OK	AS/IM_A returns, possibly modified,
31											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
					→							IBCF_A
32						\rightarrow					200 OK	IBCF_A forwards 200 OK response
	I	I		I	I	-		I				to IBCF_B

Step					Direc	tion		-			Message	Comment
	U	U E	A S/	M	I	I	M	A S/	UE	U		
	s e	A	5/ 	S	B C	B C	S	5/ 	B	s e		
	r		M	Ă	F	F	B	M	_	r		
00	Α		Α		Α	В		В		В	000 01/	
33							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
34								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
35							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
36						<i>(</i>					200 OK	IMS_B forwards 200 OK response to
37					,						200 OK	IBCF_B IBCF_B forwards 200 OK response
38											200 OK	to IBCF_A IBCF_A forwards 200 OK response
				←	_							to IMS_A
39									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
40										→		User B is informed that file transfer has been accepted by user B
41				K							АСК	UE_B acknowledges the receipt of
42					\rightarrow						ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
43						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
44							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
45								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
46							←	_			ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
47						<u> </u>					ACK	IMS_B forwards ACK to IBCF_B
48					(_`					ACK	IBCF_B forwards ACK to IBCF_A
49				<u> </u>	_`						ACK	IBCF_A forwards ACK to IMS_A
50			(_`							ACK	IMS_A forwards ACK to AS/IM_A
51			`	→							ACK	AS/IM_A returns, possibly modified,
52		←									АСК	ACK to IMS_A IMS_A forwards ACK to UE_A
53	€									→		File transfer starts (see clause 5.3.3 Image data via MSRP)
54												File transfer completed (size
												checked) and users can continue with 1 to 1 chat (see clause 5.3.1 Chat 1 to 1 via MSRP)
55				←	-	-			_		BYE	UE_B releases the file transfer
56					_						BYE	session with BYE IMS_A forwards BYE to IBCF_A
57						_					BYE	IBCF_A forwards BYE to IBCF_B
58						1					BYE	IBCF_B forwards BYE to IMS_B
59											BYE	IMS_B forwards BYE to AS/IM_B
60							<u> </u>				BYE	AS/IM_B returns, possibly modified,
61											DVE	BYE to IMS_B IMS_B forwards BYE to IBCF_B
61											BYE BYE	
62												IBCF_B forwards BYE to IBCF_A
63 64			,								BYE BYE	IBCF_A forwards BYE to IMS_A IMS_A forwards BYE to AS/IM_A
64 65											BYE	AS/IM_A returns, possibly modified,
				7							L	BYE to IMS_A
66		←		—							BYE	IMS_A forwards BYE to UE_A
67												User A is informed that file transfer completed
68		-		\rightarrow							200 OK	UE_A sends 200 OK for BYE
69			<u> </u>								200 OK	IMS_A forwards 200 OK response to
	I		ſ				ļ	1				AS/IM_A

Step					Direc	tion					Message	Comment
	U s e	U E A	A S/ I M	I M S A	I B C F	I B C F	I M S B	A S/ I M	U E B	U s e		
	Ă		A	A	A	В	D	B		B		
70			·	→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
71					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
72						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
73							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
74								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
75							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
76						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
77					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
78				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
79									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
80										→		User B is informed that file transfer completed
81	←									\rightarrow		Users continue chatting
82												Continue UC_RCS_4_R (90A-115B)

4.5.3.5 File transfer rejection within 1-to-1 chat

4.5.3.5.1 File transfer rejection within 1-to-1 chat - interworking

	Interoperability Test Desc	cription							
Identifier:	TD_IMS_CHAT_0011	•							
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users in their home network can be performed. User A starts file transfer with User B, but User B rejects invitation								
0									
Configuration:	CF_INT_AS								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119							
		(item 1 in 8 th numbered list)							
Use Case ref.:	UC_RCS_5_I								
Pre-test conditions:	 per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally UE_B is registered in IMS_B optionally 	blished to their respective IMS networks as v using userPRES according to table 1 v using userPRES according to table 1 ve notifications with watcher information formation of UE_B ive authorization S_B ned capability discovery process							

		Interoperability Test Description							
Test Sequence:	Step								
	1	User A selects User B in the phone address book and sends him an initial							
		message							
	2	User B is informed of incoming message							
	3	User A is informed that initial message was delivered to user B							
	4	User B reads the initial message from user A and opens the 1-to-1 chat							
	5	Users perform chatting							
	6	User A initiates a file transfer to user B							
	7	User B is informed of incoming file and rejects the transfer							
	8	User A is informed that file transfer has been rejected by user B							
	9	Users continue chatting							
	10A	User A closes the 1-to-1 chat							
	10B	User B closes the 1-to-1 chat							
	11A	User A is informed that 1-to-1 chat with user B is closed							
	11B	User B is informed that 1-to-1 chat with user A is closed							
Conformance Criteria:	Check								
	1	TP_IMS_5107_03 in CFW step 41 (CANCEL): ensure that { when { UE_A sends CANCEL to UE_B } then { IMS_B receives the CANCEL not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A }							

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	I	Ι	Α	U	U	Ŭ	
	S	Е	S/	м	В	В	М	S/	Е	s		
	е	Α	I	S	С	С	S	I	В	е		
	r		м	Α	F	F	В	М		r		
	A		A		A	В		В		В		
1												Follow UC_RCS_4_I (1-68)
2	_	→										User A initiates a file transfer to user B
3											INVITE	UE_A sends INVITE to IMS_A to
												establish a new session with the
				,								SDP offer indicating all specific data
												for a new MSRP connection set up
4		←									100 Trying	IMS_A responds with a 100 Trying
-												provisional response
5			<									IMS_A forwards INVITE to AS/IM_A
6				\rightarrow							100 Trying	AS/IM_A responds with a 100
7											INVITE	Trying provisional response
				\rightarrow								AS/IM_A returns, possibly modified, INVITE to IMS_A
8			(100 Trying	IMS_A responds with a 100 Trying
												provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
10				(100 Trying	IBCF_A responds with a 100 Trying
												provisional response
11						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
12					(100 Trying	IBCF_B responds with a 100 Trying
												provisional response
13							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
14						_					100 Trying	IMS_B responds with a 100 Trying
												provisional response
15								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
16							<u> </u>				100 Trying	AS/IM_B responds with a 100
												Trying provisional response
17							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
		-							-			

				Direct	tion					Message	Comment
U	U	A	I	I	l		A	U	U	-	
	A	_					5/ 	B			
r		M	Ă	F	F	В	М	_	r		
Α		A		Α	В		В		В	100 T :	
							\rightarrow			100 Trying	IMS_B responds with a 100 Trying
								<u> </u>			provisional response IMS_B forwards INVITE to UE_B
								1			UE_B optionally responds with a
						←		_		roo rrying	100 Trying provisional response
									_		User B is informed of incoming file
											and rejects the transfer
										603 Decline	UE_B responds INVITE with 603
						←					Decline response to indicate that
										602 Dealine	the session has been rejected IMS_B forwards 603 Decline
							\rightarrow			603 Decline	response to AS/IM_B
										603 Decline	AS/IM_B returns, possibly modified,
											603 Decline response to IMS_B
					/					603 Decline	IMS_B forwards 603 Decline
											response to IBCF_B
				←	_					603 Decline	IBCF_B forwards 603 Decline
										CO2 Dealine	response to IBCF_A IBCF_A forwards 603 Decline
			←							603 Decline	response to IMS_A
										603 Decline	IMS_A forwards 603 Decline
		<									response to AS/IM_A
			`							603 Decline	AS/IM_A returns, possibly modified,
											603 Decline response to IMS_A
	←									603 Decline	IMS_A forwards 603 Decline
											response to UE_A User A is informed that file transfer
←	-										has been rejected by user B
										ACK	UE_A acknowledges the receipt of
			→								603 Decline response for INVITE
		←								ACK	IMS_A forwards ACK to AS/IM_A
			`							ACK	AS/IM_A returns, possibly modified,
											ACK to IMS_A
				→							IMS_A forwards ACK to IBCF_A
					\rightarrow						IBCF_A forwards ACK to IBCF_B
						\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
							\rightarrow				IMS_B forwards ACK to AS/IM_B
						←				ACK	AS/IM_B returns, possibly modified,
						ľ					ACK to IMS_B
								→		ACK	IMS_B forwards ACK to UE_B
4									_		Users continue chatting (see clause 5.3.1 Chat 1 to 1 via MSRP -
									1		CheckMSRP3)
											Continue UC_RCS_4_I (69A-88B)
	s e r	s E e A r	s E S/ e A I r M	s E S/ M e A I S r M A	U U A I I s E S/ M B e A I S C r M A F	U U A I	U U A I I I I I s E S/ M B B M e A I S C C S r M A F F B A A A B	U U A I I I I A s E S/ M B B M S/ e A I S C C S I r M A F F B M A A A B B	U U A I I I I A U s E S/ M B B M S/ E e A I S C C S I B r M A F F B M A A B B B 	U U A I I I I I A U U s E S/ M B B M S/ E s e A I S C C S I B e r M A F F B M r a A A A B B B B B B A A B B B B B B B	U U A I I I I I A U U S e A I S C C S I B e r A A A F F B M A F INVITE A A A B B B B B B B B B B B B B INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying INVITE I00 Trying I00 Trying INVITE I00 Trying I00 Trying INVITE I00 Trying INVITE I00 Trying I00 Trying I00 Trying I00 Trying I00 Trying INVITE I00 Trying I00 Trying I00 Trying I00 Trying I00 Trying I00 Trying I00 Trying

4.5.3.5.2 File transfer rejection within 1-to-1 chat - roaming (optional)

	Interoperability Test Description								
Identifier:	TD_IMS_CHAT_0012								
Summary:	IMS network supports 1-to-1 IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts file transfer with User A, but User A rejects invitation								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5107_03 TS 124 229 [1], clause 5.4.3.2 ¶119								
	(item 1 in 8 th numbered list)								

		Interoperability Test D	escription
	TD_MSRI	P_FILE_0001	RFC 4975 [10], clauses 5.4, 7.1 and 7.2
Use Case ref.:		_5_R & UC_MSRP_02	RFC 5547 [13]
	00_100		
Pre-test conditions:	 UE_/ per T UE_/ UE_/ UE_/ UE_/ UE_/ IMS_ IMS_ AS_E IMS_ UE_/ 	S 186 011-2 [9], clause 4.2.1 A is registered in IMS_A option B is registered in IMS_B via IM A, UE_B and UE_C shall supp A is optionally configured to re- A is authorized to see presenc A is configured to contact AS_ B is configured to contact AS_ B is optionally configured for re- A is within the trust domain of A and UE_B have already perf	established to their respective IMS networks as nally using userPRES according to table 1 IS_A optionally using userPRES according to ort MSRP ceive notifications with watcher information e information of UE_B _A _B eactive authorization IMS_B formed capability discovery process
	• IMS_	A not configured for topology	hiding
Test Sequence:	Step 1 2 3 4 5 6 7 8 9 10A 10B 11A 11B	message with MSRP indicati User A is informed of incomin User B is informed that initial User A reads the initial mess Users perform chatting (MSF User B initiates a file transfer User A is informed of incomin User B is informed that file tr Users continue chatting (MS User B closes the 1-to-1 cha User A closes the 1-to-1 cha User B is informed that that f	ng message I message was delivered to user A age from user B and opens the 1-to-1 chat RP session) r to user A ng file and rejects the transfer ansfer has been rejected by user B RP session) t
Conformance Criteria:	Check 1	TP_IMS_5107_03 in CFW st ensure that { when { UE_A sends CANC then { IMS_B receives the 0 not containing Rou indicating the S-CS } }	EL to UE_B } CANCEL

Step					Direc	tion					Message	Comment
	U s e r	U E A	A S/ I M	I M S A	I B C F	I B C F	I M S B	A S/ I M	U E B	U s r		
1 2	<u> </u>					B		B		<u>В</u>		Follow UC_RCS_4_R (1-89) User B initiates a file transfer to user A
3											INVITE	UE_B sends INVITE to IMS_A to establish a new session with the SDP offer indicating all specific data
4											100 Trying	for a new MSRP connection set up (MSRP session) IMS_A responds with a 100 Trying
									\rightarrow			provisional response

139	1	33	
-----	---	----	--

Step					Direct	ion					Message	Comment
	U	U	Α			I		A	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r	~	M	A	F	F	B	M	Б	r		
	Α		Α		A	В		В		В		
5)							IMS_A forwards INVITE to IBCF_A
6				← − −							100 Trying	IBCF_A responds with a 100 Trying provisional response
7						→					INVITE	IBCF_A forwards INVITE to IBCF_B
8					<u> </u>						100 Trying	IBCF_B responds with a 100 Trying
9					Ì		``				INVITE	provisional response IBCF_B forwards INVITE to IMS_B
9 10							_				100 Trying	IMS_B responds with a 100 Trying
10						<						provisional response
11								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
12							←	_			100 Trying	AS/IM_B responds with a 100 Trying provisional response
13							,				INVITE	AS/IM_B returns, possibly modified,
												INVITE to IMS_B
14								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
15						←					INVITE	IMS_B forwards INVITE to IBCF_B
16							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying
17											INVITE	provisional response IBCF_B forwards INVITE to IBCF_A
18											100 Trying	IBCF_B forwards invite to IBCF_A
						→						provisional response
19				←							INVITE	IBCF_A forwards INVITE to IMS_A
20					>						100 Trying	IMS_A responds with a 100 Trying provisional response
21			←	_							INVITE	IMS_A forwards INVITE to AS/IM_A
22				_							100 Trying	AS/IM_A responds with a 100 Trying
23											INVITE	provisional response AS/IM_A returns, possibly modified,
23				→								INVITE to IMS_A
24			<u> </u>								100 Trying	IMS_A responds with a 100 Trying
25		<i>(</i>									INVITE	provisional response IMS_A forwards INVITE to UE_A
26		Ì									100 Trying	UE_A optionally responds with a 100
				→								Trying provisional response
27	←	-										User A is informed of incoming file and rejects the transfer
28											603 Decline	UE_A responds INVITE with 603
				\rightarrow								Decline response to indicate that the
29											603 Decline	session has been rejected IMS_A forwards 603 Decline
23			←								005 Decline	response to AS/IM_A
30				→							603 Decline	AS/IM_A returns, possibly modified,
31											603 Decline	603 Decline response to IMS_A IMS_A forwards 603 Decline
					*							response to IBCF_A
32						\rightarrow					603 Decline	IBCF_A forwards 603 Decline
33											603 Decline	response to IBCF_B IBCF_B forwards 603 Decline
							\rightarrow					response to IMS_B
34								\rightarrow			603 Decline	IMS_B forwards 603 Decline
35											603 Decline	response to AS/IM_B AS/IM_B returns, possibly modified,
							K					603 Decline response to IMS_B
36						←					603 Decline	IMS_B forwards 603 Decline
37											603 Decline	response to IBCF_B IBCF_B forwards 603 Decline
					<u> </u>							response to IBCF_A
38				←	-						603 Decline	IBCF_A forwards 603 Decline response to IMS_A
	I	I	I	I	I	I	1	I	I	I	L	רפארוטאפיוט אפרוטענים א

Step					Dire	ction					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
39									→		603 Decline	IMS_A forwards 603 Decline response to UE_B
40										→		User B is informed that file transfer has been rejected by user B
41				←					_		ACK	UE_B acknowledges the receipt of 603 Decline response for INVITE
42					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
43						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
44							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
45								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
46							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
47						←					ACK	IMS_B forwards ACK to IBCF_B
48					←						ACK	IBCF_B forwards ACK to IBCF_A
49				←							ACK	IBCF_A forwards ACK to IMS_A
50			←								ACK	IMS_A forwards ACK to AS/IM_A
51				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		←		_							ACK	IMS_A forwards ACK to UE_A
53										→		Users continue chatting (see clause 5.3.1 Chat 1 to 1 via MSRP - CheckMSRP3)
54												Continue UC_RCS_4_R (90A-115B)

4.5.3.6 1-to-many chat

4.5.3.6.1 1-to-many chat - interworking

	Interoperability Tes	t Description										
Identifier:	TD_IMS_CHAT_0013											
Summary:	IMS network supports 1-to-many IM/Chat service and messages exchange between two users in their home network can be performed. User A starts 1-to-many chat with users B and C											
Configuration:	CF_INT_AS											
SUT	IMS A and IMS B											
References	Test Purpose	Specification Reference										
	TP_IMS_5107_03 TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)											
	TD_MSRP_FILE_0001 RFC 4975 [10], clauses 5.4, 7.1 and 7.2 RFC 5547 [13]											
Use Case ref.:	UC_RCS_6_I & UC_MSRP_02											
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A, UE_C and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B and UE_C are registered in IMS_B optionally using userPRES according to table 1 UE_A, UE_B and UE_C shall support MSRP UE_A is optionally configured to receive notifications with watcher information UE_A is authorized to see presence information of UE_B and UE_C IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive authorization 											

		Interoperability Test Description
	 IMS 	A is within the trust domain of IMS_B
		A, UE_C and UE_B have already performed capability discovery process
		A not configured for topology hiding
	- IIII0_	
Test Sequence:	Step	
-	1	User A initiates a 1-to-many Chat with User B and User C by sending initial
		message
	2	User A is informed that the 1-to-many Chat is established
	3	User B is informed of incoming invitation from User A to join the 1-to-many
		Chat
	4	User B reads the initial message and accepts the 1-to-many Chat invitation
	5	User A is notified with list of 1-to-many Chat participants
	6	User B is notified with list of 1-to-many Chat participants
	7	Users perform messaging in the 1-to-many Chat
	8A	User B leaves the 1-to-many Chat
	8B	User A leaves the 1-to-many Chat
	9A	User B is informed that he has left the 1-to-many Chat
	9B	User A is informed that he has left the 1-to-many Chat
	10A	User A is notified that all other users have left the 1-to-many Chat
	10B	User B is notified that all other users have left the 1-to-many Chat
	11A	User A leaves the 1-to-many Chat
	11B	User B leaves the 1-to-many Chat
	12A	User A is informed that the 1-to-many Chat has ended
	12B	User B is informed that the 1-to-many Chat has ended
Conformance Criteria:	Check	
	1	TP_IMS_5107_03 in CFW step 41 (CANCEL):
		ensure that {
		when { UE_A sends CANCEL to UE_B }
		then { IMS_B receives the CANCEL
		not containing Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
]}
]}

Step					Direc	tion	Message	Comment				
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	– В С – В	I M S B	A S/ I B	U E B	IJwerß		
1	-	→										User A initiates a 1-to-many Chat with User B and User C by sending initial message
2											INVITE	UE_A sends INVITE to IMS_A with Request-URI set to IM CONFERENCE FACTORY URI, MIME resource-list body including invited IM Users and the first SDP offer indicating all specific data for MSRP connection set up (CheckMSRP1)
3		←		_							100 Trying	IMS_A responds with a 100 Trying provisional response
4			←								INVITE	IMS_A forwards INVITE to AS/IM_A
5				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response

ETSI TS 102 901 V4.1.1 (2012-05)

Step					Direct	ion					Message	Comment
	U	٦C	A	I		I	I	A	UE	U		
	s e	E A	S/	M S	B C	B C	M S	S/	B	s e		
	r		M	Ă	F	F	В	M		r		
0	Α		Α		Α	В		В		В	000 01/	
6											200 OK	AS/IM_A responds INVITE with 200 OK response with IM session
												Identity allocated for the current
												1-to-many Chat to indicate that
												the session has been accepted and SDP to inform A-side with
												specific data for MSRP
												connection set up
7		<u> </u>									200 OK	IMS_A forwards 200 OK
8		-										response to AS/IM_A User A is informed that the 1-to-
0	←	-										many Chat is established
9				_							ACK	UE_A acknowledges the receipt
				1								of 200 OK for INVITE
10 11			K								ACK INVITE	IMS_A forwards ACK to AS/IM_A AS/IM_A sends INVITE to UE_B
												with IM session identity (allocated
				\rightarrow								for the current 1-to-many Chat)
												and IM address of the Inviting IM
12			/								100 Trying	UE (UE_A) IMS_A responds with a 100
12											100 Trying	Trying provisional response
13					→						INVITE	IMS_A forwards INVITE to
14				,							100 Trying	IBCF_A IBCF_A responds with a 100
14											100 Trying	Trying provisional response
15						→					INVITE	IBCF_A forwards INVITE to
10											100 T :	IBCF_B
16					<						100 Trying	IBCF_B responds with a 100 Trying provisional response
17							\rightarrow				INVITE	IBCF_B forwards INVITE to
												IMS_B
18						(100 Trying	IMS_B responds with a 100 Trying provisional response
19								\rightarrow			INVITE	IMS_B forwards INVITE to
												AS/IM_B
20							←	_			100 Trying	AS/IM_B responds with a 100
21							(_			INVITE	Trying provisional response AS/IM_B returns, possibly
							ľ					modified, INVITE to IMS_B
22								→			100 Trying	IMS_B responds with a 100
23											INVITE	Trying provisional response IMS_B forwards INVITE to UE_B
									1			
24							←				100 Trying	UE_B optionally responds with a
25												100 Trying provisional response User B is informed of incoming
25										\rightarrow		invitation from User A to join the
												1-to-many Chat
26									(User B reads the initial message
												and accepts the 1-to-many Chat invitation
27											200 OK	UE_B responds INVITE with 200
												OK response with SDP to
							<					indicate that the session has been accepted and inform
												AS/IM_A with specific data for
												MSRP connection set up
28								→			200 OK	IMS_B forwards 200 OK
	1	I	I		I	I	I	I				response to AS/IM_B

Step					Direc	tion					Message	Comment
	U s	U E	A S/	I M	l B	l B	I M	A S/		U s		
	e	A	3/ 	S	C	C	S	3/ 		e e		
	r A		M A	Α	F A	F B	В	M B		r B		
29											200 OK	AS/IM_B returns, possibly
												modified, 200 OK response to
30						←					200 OK	IMS_B IMS_B forwards 200 OK
						ľ						response to IBCF_B
31					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
32				←	_						200 OK	IBCF_A forwards 200 OK
33			(200 OK	response to IMS_A IMS_A forwards 200 OK
												response to AS/IM_A
34				\rightarrow							ACK	AS/IM_A acknowledges the receipt of 200 OK for INVITE
35					→						АСК	IMS_A forwards ACK to IBCF_A
36											ACK	IBCF_A forwards ACK to IBCF_B
30						7					ACK	IBCF_A IOI WAI'US ACK TO IBCF_B
37							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
38								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
39							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
40									\rightarrow		ACK	IMS_B forwards ACK to UE_B
41				\rightarrow							SUBSCRIBE	UE_A subscribes to the conference event package
42			←								SUBSCRIBE	IMS_A forwards SUBCRIBE to AS/IM_A
43				\rightarrow							200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
44		←									200 OK	IMS_A forwards 200 OK response to UE_A
45											NOTIFY	AS/IM_A sends NOTIFY to UE_A
				1								with list of 1-to-many Chat participants
46		←									NOTIFY	IMS_A forwards the NOTIFY to
47	-	_										UE_A User A is notified with list of 1-to-
												many Chat participants
48				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
49			←								200 OK	IMS_A forwards the 200 OK
50											SUBSCRIBE	response to AS/IM_A UE B subscribes to the
							Ì					conference event package
51								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
52							←				SUBSCRIBE	AS/IM_B returns, possibly modified, SUBSCRIBE to IMS_B
53						←					SUBSCRIBE	IMS_B forwards SUBSCRIBE to IBCF_B
54					←						SUBSCRIBE	IBCF_B forwards SUBSCRIBE to
55				←							SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to
56			←	_							SUBSCRIBE	IMS_A IMS_A forwards SUBSCRIBE to
57											200 OK	AS/IM_A AS/IM_A sends 200 OK for
<u>,</u>				1								SUBSCRIBE

Step					Direc	tion					Message	Comment
	U	UE	A S/	I M	l B	I B	I M	A S/	UE	U		
	s e	A	5/ 	S	Č	Č	S	5/ 	B	s e		
	r		М	Α	F	F	В	Μ		r		
58	<u>A</u>		A		<u>A</u>	В		В		В	200 OK	IMS_A forwards 200 OK
50					~						200 0K	response to IBCF_A
59						\rightarrow					200 OK	IBCF_A forwards 200 OK
60											200 OK	response to IBCF_B IBCF_B forwards 200 OK
00											200 01	response to IMS_B
61								\rightarrow			200 OK	IMS_B forwards 200 OK
62											200 OK	response to AS/IM_B AS/IM_B returns, possibly
02							←				200 OK	modified, 200 OK response to IMS_B
63									→		200 OK	IMS_B forwards 200 OK response to UE_B
64											NOTIFY	AS/IM_A sends NOTIFY to UE_B
												with list of 1-to-many Chat
65					_						NOTIFY	participants IMS_A forwards BYE to IBCF_A
00					1							
66						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
67							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
68								\rightarrow			NOTIFY	IMS_B forwards BYE to AS/IM_B
69							←				NOTIFY	AS/IM_B returns, possibly
70											NOTIFY	modified, BYE to IMS_B IMS_B forwards BYE to UE_B
10									1			
71										→		User B is notified with list of 1-to- many Chat participants
72							←		-		200 OK	UE_B sends 200 OK for NOTIFY
73								\rightarrow			200 OK	IMS_B forwards 200 OK
74											200 OK	response to AS/IM_B AS/IM_B returns, possibly
							<					modified, 200 OK response to IMS_B
75						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
76					←						200 OK	IBCF_B forwards 200 OK
77				←							200 OK	response to IBCF_A IBCF_A forwards 200 OK
				ľ								response to IMS_A
78			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
79												Users perform messaging in the
	€		-*							→		1-to-many Chat (see clause 5.3.2.1 Chat 1 to many via MSRP
												- Interworking)
80A									(User B leaves the 1-to-many
81A							←				BYE	Chat UE_B sends BYE to IMS_B to
82A											BYE	leave the 1-to-many Chat IMS_B forwards BYE to AS/IM_B
								1				
83A							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
84A						←					BYE	IMS_B forwards BYE to IBCF_B
85A											BYE	IBCF_B forwards BYE to IBCF_A
00/1					ſ							

Step						Directi	on					Message	Comment
	U s		U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e		Ā	I	S	С	С	S	3, I	В	e		
	r A			M A	Α	F A	F B	В	M B		r B		
86A	Î				K						Ī	BYE	IBCF_A forwards BYE to IMS_A
87A				←								BYE	IMS_A forwards BYE to AS/IM_A
88A					*							200 OK	AS/IM_A sends 200 OK for BYE
89A												200 OK	IMS_A forwards 200 OK response to IBCF_A
90A							*					200 OK	IBCF_A forwards 200 OK response to IBCF_B
91A								•				200 OK	IBCF_B forwards 200 OK response to IMS_B
92A									→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
93A								<u> </u>				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
94A										→		200 OK	IMS_B forwards 200 OK response to UE_B
95A													User B is informed that he has left the 1-to-many Chat
96A				·	*							NOTIFY	AS/IM_A sends NOTIFY to IMS _A to inform UE_A that User B has left the 1-to-many Chat
97A			←		-							NOTIFY	IMS_A forwards the NOTIFY to UE_A
98A	÷												User A is notified that all other users have left the 1-to-many Chat
99A					*							200 OK	UE_A responds with 200 OK to IMS_A
100A				(_							200 OK	IMS_A forwards the 200 OK response to AS/IM_A
101A	-	\longrightarrow											User A leaves the 1-to-many Chat
102A					*							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
103A				~								BYE	IMS_A forwards BYE to AS/IM_A
104A					*							200 OK	AS/IM_A sends 200 OK for BYE
105A			←		-							200 OK	IMS_A forwards 200 OK response to UE_A
106A	ŧ												User A is informed that the 1-to- many Chat has ended
80B													User A leaves the 1-to-many Chat
81B					*							BYE	UE_A sends BYE to IMS_A to leave the 1-to-many Chat
82B				←	1							BYE	IMS_A forwards BYE to AS/IM_A
83B					*							200 OK	AS/IM_A sends 200 OK for BYE
84B			<									200 OK	IMS_A forwards 200 OK response to UE_A
85B	÷												User A is informed that he has left the 1-to-many Chat
86B												NOTIFY	AS/IM_A sends NOTIFY to IMS_A to inform UE_B that User A has left the 1-to-many Chat

Step					Direc	tion					Message	Comment
	U s	U E	A S/	I M	I B	l B	M	A S/	UE	U s		
	е	Ā	Ι	S	С	С	S	1	В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
87B					\rightarrow						NOTIFY	IMS_A forwards BYE to IBCF_A
88B						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
89B							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
90B								\rightarrow			NOTIFY	IMS_B forwards BYE to AS/IM_B
91B							←				NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
92B									\rightarrow		NOTIFY	IMS_B forwards BYE to UE_B
93B									-	→		User B is notified that all other users have left the 1-to-many Chat
94B							←		-		200 OK	UE_B sends 200 OK for NOTIFY
95B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
96B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
97B						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
98B					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
99B				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
100B			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
101B										=		User B leaves the 1-to-many Chat
102B							←	_	-		BYE	UE_B sends BYE to IMS_B to leave the 1-to-many Chat
103B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
104B							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
105B						←					BYE	IMS_B forwards BYE to IBCF_B
106B					<i>←</i>						BYE	IBCF_B forwards BYE to IBCF_A
107B				←							BYE	IBCF_A forwards BYE to IMS_A
108B			←								BYE	IMS_A forwards BYE to AS/IM_A
109B				\rightarrow							200 OK	AS/IM_A sends 200 OK for BYE
110B					\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
111B						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
112B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
113B								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
114B							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
115B									\rightarrow		200 OK	IMS_B IMS_B forwards 200 OK response to UE_B

Step					Direc	tion					Message	Comment
	U s e r A	U E A	A S/ I M	I M S A	I B C F ▲	I B C F B	I M S B	A S/ I M B	U E B	U s r B		
116B										\rightarrow		User B is informed that the 1-to- many Chat has ended

4.5.3.6.2 1-to-many chat - roaming (optional)

		Interoperability Test Descr	iption									
Identifier:		CHAT_0014										
Summary:			rvice and messages exchange between									
	two users, one user in its home network and one user roaming can be performed B starts 1-to-many chat with user A and C											
	B starts 1	-to-many chat with user A and C										
Configuration:	CF_ROA	M_AS (OPTIONAL)										
SUT	IMS_A and IMS_B											
References	Test Pur		Specification Reference									
	TP_IMS_	5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119									
			(item 1 in 8 th numbered list)									
Use Case ref.:	UC_RCS	_6_R										
Pre-test		of IMC A and of IMC D is configure	ad according to table 4									
conditions:		of IMS_A and of IMS B is configure										
conditions.	 UE_A, UE_C and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 											
	 networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 											
	 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B and UE_C are registered in IMS_B via IMS_A optionally using userPRES 											
	according to table 1											
	 UE_A is optionally configured to receive notifications with watcher information 											
	 UE_A is authorized to see presence information of UE_B and UE_C 											
	 IMS_A is configured to contact AS_A 											
	IMS_B is configured to contact AS_B											
	 AS_B is optionally configured for reactive authorization 											
	 IMS_A is within the trust domain of IMS_B 											
	 UE_A, UE_C and UE_B have already performed capability discovery process 											
			erformed capability discovery process									
		A, UE_C and UE_B have already p A not configured for topology hidin	erformed capability discovery process									
Tost Soquence:	• IMS_		erformed capability discovery process									
Test Sequence:	• IMS_ Step	A not configured for topology hidin	erformed capability discovery process g									
Test Sequence:	• IMS_	A not configured for topology hidin User B initiates a 1-to-many Chat	erformed capability discovery process									
Test Sequence:	• IMS_ <u> Step</u> 1	A not configured for topology hidin User B initiates a 1-to-many Chat message	erformed capability discovery process g with User A and User C by sending initial									
Test Sequence:	• IMS_ Step	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n	erformed capability discovery process g with User A and User C by sending initial hany Chat is established									
Test Sequence:	• IMS_ <u>Step</u> 1 2	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n	erformed capability discovery process g with User A and User C by sending initial									
Test Sequence:	• IMS_ <u>Step</u> 1 2	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat	erformed capability discovery process g with User A and User C by sending initial hany Chat is established									
Test Sequence:	• IMS_ Step 1 2 3 4 5	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to-i	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- User A is notified with list of 1-to-	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- User A is notified with list of 1-to- Users perform messaging in the	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- User A is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat t									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- User A is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat t t									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User A is informed that he has left	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants many Chat participants 1-to-many Chat t t t t the 1-to-many Chat									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A 9B	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User A is informed that he has lef User B is informed that he has lef	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants nany Chat participants 1-to-many Chat t t t t the 1-to-many Chat t the 1-to-many Chat t the 1-to-many Chat									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A 9B 10A	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User A is informed that he has lef User B is informed that he has lef User B is notified that all other us	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants 1-to-many Chat participants 1-to-many Chat t t t the 1-to-many Chat it the 1-to-many Chat ers have left the 1-to-many Chat									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A 9B 10A 10B	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User B leaves the 1-to-many Cha User A is informed that he has lef User B is notified that all other us User A is notified that all other us	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants 1-to-many Chat participants 1-to-many Chat t t t t the 1-to-many Chat t the 1-to-many Chat ers have left the 1-to-many Chat ers have left the 1-to-many Chat									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A 9B 10A 10B 11A	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-m User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User B is informed that he has lef User B is informed that he has lef User B is notified that all other us User A is notified that all other us User B leaves the 1-to-many Cha	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants 1-to-many Chat participants 1-to-many Chat t t t t the 1-to-many Chat t the 1-to-many Chat ers have left the 1-to-many Chat ers have left the 1-to-many Chat t									
Test Sequence:	• IMS_ Step 1 2 3 4 5 6 7 8A 8B 9A 9B 10A 10B	A not configured for topology hidin User B initiates a 1-to-many Chat message User B is informed that the 1-to-n User A is informed of incoming in Chat User A reads the initial message User B is notified with list of 1-to- Users perform messaging in the User A leaves the 1-to-many Cha User B leaves the 1-to-many Cha User B leaves the 1-to-many Cha User A is informed that he has lef User B is notified that all other us User A is notified that all other us	erformed capability discovery process g with User A and User C by sending initial hany Chat is established vitation from User B to join the 1-to-many and accepts the 1-to-many Chat invitation many Chat participants 1-to-many Chat participants 1-to-many Chat t t t the 1-to-many Chat it the 1-to-many Chat ers have left the 1-to-many Chat ers have left the 1-to-many Chat t t									

	Interoperability Test Description											
Conformance Criteria:	Check											
	1	TP_IMS_5107_03 in CFW step 56 (CANCEL): ensure that { when { UE_A sends CANCEL to UE_B } then { IMS_B receives the CANCEL not containing Route_header indicating the S-CSCF_SIP_URI of IMS_A } }										

Step					Direc	tion					Message	Comment
	U	U	Α		Ι	Ι	I	A	U	U		
	S	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	e r	A	M	A	F	F	B	м	D	r		
	Å		A		A	B		В		В		
1												User B initiates a 1-to-many Chat
									←			with User A and User C by sending
2											INVITE	initial message UE_B sends INVITE to IMS_A with
2												Request-URI set to IM
												CONFERENCE FACTORY URI,
				←	_							MIME resource-list body including
												invited IM Users and the first SDP
												offer indicating all specific data for MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
				-					→			provisional response
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5				←							100 Trying	IBCF_A responds with a 100 Trying
6											INVITE	provisional response IBCF A forwards INVITE to
Ø			1			\rightarrow						IBCF_A forwards INVITE to
7					,						100 Trying	IBCF_B responds with a 100 Trying
			1									provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						←					100 Trying	IMS_B responds with a 100 Trying
10											INVITE	provisional response IMS_B forwards INVITE to
10								\rightarrow				AS/IM_B
11							/				100 Trying	AS/IM_B responds with a 100
												Trying provisional response
12											200 OK	AS/IM_B responds INVITE with
												200 OK response with IM session Identity allocated for the current 1-
							←					to-many Chat to indicate that the
												session has been accepted and
												SDP to inform A-side with specific
13											200 OK	data for MSRP connection set up IMS_B forwards 200 OK response
13						←					200 OK	to IBCF_B
14					/						200 OK	IBCF_B forwards 200 OK response
												to IBCF_A
15			1	←	_						200 OK	IBCF_A forwards 200 OK response
16											200 OK	to IMS_A IMS_A forwards 200 OK response
									\rightarrow			to UE_B
17												User B is informed that the 1-to-
										~		many Chat is established
18			1	←	_				_		ACK	UE_B acknowledges the receipt of
19					_						ACK	200 OK for INVITE IMS_A forwards ACK to IBCF_A
20					1						ACK	IBCF_A forwards ACK to IBCF_B
20						1	\rightarrow				ACK	IBCF B forwards ACK to IMS B
22								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
23			1								INVITE	AS/IM_B sends INVITE to UE_A
												with IM session identity (allocated
							←					for the current 1-to-many Chat) and
			1									IM address of the Inviting IM UE (UE_B)
24											100 Trying	IMS_B responds with a 100 Trying
27								\rightarrow				provisional response
25						←					INVITE	IMS_B forwards INVITE to IBCF_B
26			1								100 Trying	IBCF_B responds with a 100 Trying
							1					provisional response

Step					Direc	tion					Message	Comment
	U	U	A					A	U	U	-	
	s e	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	r		M	Ă	F	F	В	M	_	r		
07	Α	-	Α		Α	В		В		В		
27					←	_					INVITE	IBCF_B forwards INVITE to IBCF_A
28						``					100 Trying	IBCF_A responds with a 100 Trying
						1						provisional response
29 30				<							INVITE 100 Trying	IBCF_A forwards INVITE to IMS_A IMS_A responds with a 100 Trying
30					\rightarrow						100 Hying	provisional response
31			←	_							INVITE	IMS_A forwards INVITE to AS/IM_A
32				→							100 Trying	AS/IM_A responds with a 100
33											INVITE	Trying provisional response AS/IM_A returns, possibly
55				\rightarrow								modified, INVITE to IMS_A
34			←								100 Trying	IMS_A responds with a 100 Trying provisional response
35		←									INVITE	IMS_A forwards INVITE to UE_A
36				→							100 Trying	UE_A optionally responds with a 100 Trying provisional response
37												User A is informed of incoming
												invitation from User B to join the 1- to-many Chat
38												User A reads the initial message
		→										and accepts the 1-to-many Chat
39											200 OK	invitation UE_A responds INVITE with 200
												OK response with SDP to indicate
				\rightarrow								that the session has been accepted and inform AS/IM_A with specific
												data for MSRP connection set up
40			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
41											200 OK	AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to
42											200 OK	IMS_A IMS_A forwards 200 OK response
					\rightarrow							to IBCF_A
43						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
44							\rightarrow				200 OK	IBCF_B forwards 200 OK response
45											200 OK	to IMS_B IMS_B forwards 200 OK response
								7				to AS/IM_B
46							←				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
47						k —					ACK	IMS_B forwards ACK to IBCF_B
48					←	_					ACK	IBCF_B forwards ACK to IBCF_A
49				←							ACK	IBCF_A forwards ACK to IMS_A
50			←								ACK	IMS_A forwards ACK to AS/IM_A
51				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
52		←									ACK	IMS_A forwards ACK to UE_A
53				<u> </u>							SUBSCRIBE	UE_B subscribes to the conference
E 4				Ì							SUBSCRIBE	event package IMS_A forwards SUBSCRIBE to
54					\rightarrow							IBCF_A
55						\rightarrow					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B
56							\rightarrow				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
	I	I	I	I	I	I	I	I	I	I	L	

Step					Direct	ion					Message	Comment
	U	U E	A S/	I M	l B	I B	I M	A S/	UE	U		
	s e	E A	5/ 	S	В С	C B	™ S	5/ 	B	s e		
	r		М	Ă	F	F	В	M		r		
57	Α		Α		Α	В		В		В		
57								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
58							,				200 OK	AS/IM_B sends 200 OK for
												SUBSCRIBE
59						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
60					(_					200 OK	IBCF_B forwards 200 OK response
61											200 OK	to IBCF_A IBCF_A forwards 200 OK response
62											200 OK	to IMS_A IMS_A forwards 200 OK response
02									\rightarrow			to UE_B
63											NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat
64											NOTIFY	participants IMS_B forwards NOTIFY to
01						<u> </u>						IBCF_B
65					←	_					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
66				←	_						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
67									\rightarrow		NOTIFY	IMS_A forwards NOTIFY to UE_B
68									_	\rightarrow		User B is notified with list of 1-to-
69											200 OK	many Chat participants UE_B responds with 200 OK to
				←								IMS_A
70					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
71						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
72											200 OK	IBCF_B forwards 200 OK response
73											200 OK	to IMS_B IMS_B forwards 200 OK response
								7				to AS/IM_B
74				\rightarrow							SUBSCRIBE	UE_A subscribes to the conference event package
75			←	_							SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
76				\rightarrow							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
77					→						SUBSCRIBE	IMS_A forwards SUBSCRIBE to
78											SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to
						→						IBCF B
79							>				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
80								→			SUBSCRIBE	IMS_B forwards SUBSCRIBE to
81											200 OK	AS/IM_B AS/IM_B sends 200 OK for
82											200 OK	SUBSCRIBE IMS_B forwards 200 OK response
						K						to IBCF_B
83					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
84				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
85			(—	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
86											200 OK	AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
	I	I	I	I	I	I	I	ļ	I	ļ		

Step					Direc	tion					Message	Comment
	U	U E	A S/	I M	I B	I B	I M	A S/	UE	U		
	s e	A	5/ 	S	Č	Č	S	3/ 	B	s e		
	r		м	Α	F	F	В	М		r		
87	Α		A		Α	В		В		В	200 OK	
87		←									200 OK	IMS_A forwards 200 OK response to UE_A
88											NOTIFY	AS/IM_B sends NOTIFY to UE_A
							←					with list of 1-to-many Chat
89											NOTIFY	participants IMS_B forwards NOTIFY to
						¢						IBCF_B
90					←						NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
91											NOTIFY	IBCF_A forwards NOTIFY to
				< <u> </u>								IMS_A
92			←								NOTIFY	IMS_A forwards NOTIFY to AS/IM_A
93											NOTIFY	AS/IM_A returns, possibly
				7								modified, NOTIFY to IMS_A
94		<									NOTIFY	IMS_A forwards NOTIFY to UE_A User A is notified with list of 1-to-
95	←	_										many Chat participants
96		-	_	→							200 OK	UE_A sends 200 OK for NOTIFY
97			←								200 OK	IMS_A forwards 200 OK response
98											200 OK	to AS/IM_A AS/IM_A returns, possibly
30				→							200 010	modified, 200 OK response to
												IMS_A
99					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
100											200 OK	IBCF_A forwards 200 OK response
												to IBCF_B
101							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
102								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
103												Users perform messaging in the 1-
	←							-*-		→		to-many Chat (see clause 5.3.2.2
												Chat 1 to many via MSRP - Roaming)
104A	_	→								l l		User A leaves the 1-to-many Chat
105A				→							BYE	UE_A sends BYE to IMS_A to
106A			<u> </u>								BYE	leave the 1-to-many Chat IMS_A forwards BYE to AS/IM_A
100/1 107A			Ì								BYE	AS/IM_A returns, possibly
				7								modified, BYE to IMS_A
108A					→						BYE	IMS_A forwards BYE to IBCF_A IBCF_A forwards BYE to IBCF_B
109A 110A						→	`				BYE BYE	IBCF_A forwards BYE to IBCF_B IBCF_B forwards BYE to IMS_B
111A							1	\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
112A							←	_			200 OK	AS/IM_B sends 200 OK for BYE
113A						<u> </u>					200 OK	IMS_B forwards 200 OK response
114A						ľ					200 OK	to IBCF_B IBCF_B forwards 200 OK response
114A					←						200 01	to IBCF_A
115A				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
116A			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
117A											200 OK	AS/IM_A returns, possibly
				→							-	modified, 200 OK response to
118A		,									200 OK	IMS_A IMS_A forwards 200 OK response
		¢										to UE_A

U U U A I I I A U U S Image: Constraint of the set of	Step					Directi	on					Message	Comment
e A I S C C S I B e e 119A A A F B <th></th> <th>-</th> <th>_</th> <th></th> <th>1</th> <th></th> <th></th> <th>I</th> <th></th> <th>-</th> <th>-</th> <th></th> <th></th>		-	_		1			I		-	-		
r M A F B M 119A Image: Constraint of the constrain		-		-					-		-		
119A User A is informed that he has left the 1-to-many Chat 120A NOTIFY ASIM. B sends NOTIFY to IMS. B to inform UE. B that User A has left the 1-to-many Chat 122A NOTIFY MS. B forwards NOTIFY to IBCF. B forwards NOTIFY to IBCF. A forwards 200 CK response to IBCF. A forwards 200 CK response to IBCF. B forwards 200		-	~	-	_			-	-	_			
Image: Characterization of the second seco	1100	Α		Α		A	В		В		В		
 120A 121A 122A 122A 122A 122A 122A 122A 123A 125A 125A 125A 125A 126C = B (Dr. B (Dr.	119A	←	_										
121A Implementation Implementation Implementation Implementation 122A Implementation Implementation Implementation Implementation Implementation 123A Implementation Implementatintimplementation Implementatio	120A											NOTIFY	AS/IM_B sends NOTIFY to IMS _B
121A IMS_B Growards NOTIFY to IBCF B 122A IBCF B 123A IBCF B 123A IBCF B 123A IBCF B 124A IBCF B 125A IBCF B 125A IBCF B 126A IBCF B 127A IBCF A forwards NOTIFY to IBCF A forwards NOTIFY to IBCF A forwards 200 OK response to IBCF B 127A ISBC B 128A IBCF B 128A IBCF B 128A IBCF B 128A IBCF A 128A IBCF B 129A IBCF B 130A IBCF B 133A IBCF B 134A IBCF B 135A IBCF B 135A IBCF B 135A IBCF B 136A IBCF B 137A IBCF B 138A IBCF B 136A IBCF B 137A IBCF B 138A IBCF B 137A IBCF B 138A IBCF B 137A								←					
122A IBCF.B IBCR.B Invards NOTIFY to IBCF.A 123A NOTIFY IBCR.A Invards NOTIFY to U.E.B 124A NOTIFY IBCR.A Invards NOTIFY to U.E.B 125A User Bis novicified that all other users is novicified that users to IBCF and that more to IBCF and that more is novicified that all other is novicified that the 1-to- many Chat has ended users is novicified that that 1-to- many Chat has ended userus is novicified that the	121Δ											NOTIEY	
123A IBCF A forwards NOTIFY to IMS A 124A NOTIFY MS A forwards NOTIFY to UE B 125A User B is notified that all other users have left the 14-onany Chat 126A 200 OK UE B responds with 200 OK to IMS A 127A 200 OK IBCF A forwards 200 OK response to IBCF B forwards 200 OK response to IBCF B forwards 200 OK response to ISCF B forwards 200 OK response to ISCF B forwards 200 OK response to STAN, B 130A User B leaves the 14-onany Chat 132A User B leaves the 14-onany Chat 132A User B leaves the 14-onany Chat 133A User B leaves the 14-onany Chat 134A User B leaves the 14-onany Chat 135A User B leaves the 14-onany Chat 135A User B leaves the 14-onany Chat 136A User B leaves the 14-onany Chat 137A User B leaves the 14-onany Chat 138A User B leaves the 14-o	1217						(IBCF_B
123A NOTFY IBCF A forwards NOTIFY to UE,B 124A NOTIFY INS, A 125A User B is notified that all other users have left the 1-to-many Chat 127A 200 OK IBCF A forwards 200 OK response to IBCF B 128A IBCF A forwards 200 OK response to IBCF B IBCF A forwards 200 OK response 128A IBCF A forwards 200 OK response IBCF A forwards 200 OK response 128A IBCF A forwards 200 OK response IBCF A forwards 200 OK response 130A IBCF A forwards 200 OK response IBCF A forwards 200 OK response 131A IBCF A forwards BYE to IBCF A 132A IBCF A forwards BYE to IBCF A 133A IBCF A forwards 200 OK response 133A IBCF A forwards BYE to IBCF A 134A IBCF A forwards 200 OK response 135A IBCF A forwards 200 OK response 136A IBCF A forwards 200 OK response 137A IBCF A forwards 200 OK response 138A IBCF A forwards 200 OK response 138A IBCF A forwards 200 OK response 139A IBCF A forwards 200 OK response 139A IBCF A forwards 200 OK response 139A <	122A					←	_					NOTIFY	IBCF_B forwards NOTIFY to
124A 125A 125A 125A 126A 127A 126A 127A 128A 129A 130A 130A 131A 132A 133A 134A 135A 136A 137A 138A <t< td=""><td>123A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>NOTIFY</td><td>IBCF_A IBCF_A forwards NOTIFY to</td></t<>	123A											NOTIFY	IBCF_A IBCF_A forwards NOTIFY to
125A User B is notified that all other users have left the 1-to-many Chat to IMS_A 127A 200 OK UE_B responds with 200 OK to IMS_A 127A 200 OK UE_B responds with 200 OK response to IBCF_A 128A 200 OK IBCF_A forwards 200 OK response to MS_B 130A 200 OK IBCF_B forwards 200 OK response to MS_B forwards 200 OK response to IBCF_B 130A 200 OK IBCF_A forwards 200 OK response to MS_B forwards PE to INS_A to Iserve the 1-to-many Chat 133A BYE IBCF_A forwards BYE to IBCF_A to IBCF_A forwards BYE to IBCF_A forwards PE to IBCF_B and the IBCF_A forwards PE to IBCF_B and the IBCF_B forwards 200 OK response to IBCF_B 138A IBA IBCF_B forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and to MS_B forwards 200 OK response to IBCF_B and to MS_B forwards 200 OK response to IBCF_B and to MS_B forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and to MS_B forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and the IBCF_A forwards 200 OK response to IBCF_B and to MS_B forwards 200 OK response to IBCF_B and 200 OK in BYE to ISCF_B and 200 OK ind SYE to ISCF_B and 20					<								IMS_A
126A 126A 127A 200 OK 127A 200 OK 128A 200 OK 130A 000 OK 131A 000 OK 132A 000 OK 133A 000 OK 134A 000 OK 135A 000 OK 136A 000 OK 137A 000 OK 138A 000 OK 138A 000 OK 139A 000 OK 140A 000 OK 1411A 000 OK 1422 000 OK 142				_						→		NOTIFY	
126A 200 OK UE B responds with 200 OK to INS A 127A 200 OK INS A forwards 200 OK response to IBCF_A forwards 200 OK response to IBCF_B forwards 200 OK response 129A 200 OK IBCF_B forwards 200 OK response to IBCF_B 130A IBCF_B forwards 200 OK response 200 OK 131A IBCF_B forwards 200 OK response 200 OK 133A IBCF_B forwards BYE to IBCF_A 133A IBCF_B forwards BYE to IBCF_A 133A IBCF_B forwards BYE to IBCF_B 133A IBCF_B forwards BYE to ISCF_B 133A IBCF_B forwards BYE to ISCF_B 133A IBCF_B forwards 200 OK response 1340 IBCF_A forwards 200 OK response 1360 IBCF_B forwards 200 OK response 1370 IBCF_A forwards 200 OK resp	125A									_	→		
127A 127A 128A 128A 128A 129A 129A 130A 131A 132A 133A 133A 134 135A 135A 135A 136A 137A 138A 139A 140A 140A 141A 141A 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 1414 <tr< td=""><td>126A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>200 OK</td><td></td></tr<>	126A											200 OK	
128A 129A 129A 130A 130A 130A 130A 130A 131A 132A 132A 133A 134A 135A 136A 137A 138A 139A 141A 141A 141A 141A 1414 1414 1414 1414 1414 1414 1414 1414 <t< td=""><td></td><td></td><td></td><td></td><td><</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>IMS_A</td></t<>					<								IMS_A
128A 200 OK IBCF. A forwards 200 OK response to IMS, B 130A 100A IBCF. B forwards 200 OK response to MS, IBCF. B forwards 200 OK response to AS/IM, B 131A 00A IBCF. B forwards 200 OK response to AS/IM, B 131A 00A User B leaves the 1-to-many Chat 132A 00A IBCF. A forwards BYE to IBCF. A 133A 00A User B leaves the 1-to-many Chat 133A 133A IBCF. A forwards BYE to IBCF. B 133A IBCF. A forwards BYE to IBCF. B 133A IBCF. B forwards BYE to IBCF. B 138A IBCF. B forwards BYE to IBCF. B 138A IBCF. B forwards BYE to IAS/IM_B 138A IBCF. B forwards 200 OK response to IBCF. B 138A IBCF. B forwards 200 OK response to IBCF. B 138A IBCF. A forwards 200 OK response to IBCF. B 140A IBCF. B forwards 200 OK response to IBCF. B 141A IBCF. B forwards 200 OK response to UE. B 142A IBCF. B forwards 200 OK response to UE. B 105B IBCF. B forwards 200 OK response to UE. B 105B IBCF. B forwards BYE to IBCF. B 108B IBVE IBCF. B forwards BYE to IBCF. B <td>127A</td> <td></td> <td></td> <td></td> <td></td> <td>→</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>200 OK</td> <td></td>	127A					→						200 OK	
129A 129A 130A 130A 130A 130A 130A 130A 131A 132A 133A 134A 135A 135A 135A 135A 135A 135A 135A 135A 135A 136A 137A 138A 138A 138A 138A 138A 138A 141A 141A <t< td=""><td>128A</td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>200 OK</td><td>IBCF A forwards 200 OK response</td></t<>	128A											200 OK	IBCF A forwards 200 OK response
130A 100 IMS_B 130A IMS_B forwards 200 OK response to AS/M_B 131A User B leaves the 1-to-many Chat 132A BYE 133A IMS_A forwards BYE to IBCF_A 133A IMS_B forwards BYE to IBCF_B 133A BYE 133A IBCF_A forwards BYE to IBCF_B 135A IBCF_B forwards BYE to IBCF_B 138A IBCF_B forwards BYE to IBCF_B 138A IBCF_B forwards BYE to IBCF_B 138A IBCF_B forwards 200 OK response to IBCF_A 138A IBCF_B forwards 200 OK response to IBCF_A forwards 200 OK response to IBCF_A forwards 200 OK response 140A IBCF_B forwards 200 OK response to IBCF_A forwards 200 OK response 141A IBCF_B forwards 200 OK response 140A IBCF_B forwards 200 OK response 142A IBCF_A forwards 200 OK response 142A IBCF_B forwards 200 OK response 142A IBCF_B forwards 200 OK response 106B IBCF_B forwards 200 OK response 107B IBCF_B forwards BYE to IBCF_A 108B IBCF_B forwards BYE to IBCF_B 109B IBCF_B forwards 200 OK response 109B <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>7</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>to IBCF_B</td>							7						to IBCF_B
 130A 131A 132A 132A 133A 133A 133A 133A 135A 135A 136A 136A 137A 138A 141A 141A 141B 141B 141B 141A 141A 141A 141A 141B 141A 141A<td>129A</td><td></td><td></td><td></td><td></td><td></td><td></td><td>`</td><td></td><td></td><td></td><td>200 OK</td><td></td>	129A							`				200 OK	
131A 10 AS/IM_B 132A User B leaves the 1-to-many Chat 132A BYE 133A BYE 142A BYE 142A <td>130A</td> <td></td> <td>200 OK</td> <td></td>	130A											200 OK	
 132A 133A 134A 134A 134A 134A 135A 136A 136A 137A 138A 139A 140A 141A 142A 142A 142A 105B 106B 107B 107B 108B 109B 1118 1128 1128 1128 1128 1128 1138 1144 									7				to AS/IM_B
133A 133A 133A 133A 133A 133A 133A 135A 135A 135A 136A 137A 137A 137A 137A 138A 137A 138A 139A 140A 140A 141A 141A 141A 142A 142A 105B 104B 112B 112B 112B 113B 114B										←	_		
 133A 134A 135A 136A 136A 136A 137A 137A 138A 137A 138A 139A 140A 140A 141A 142A 142A 105B 105B 106B 107B 107B 107B 108B 108B 112B 112B 112B 112B 114B 114B 	132A				←			_				BYE	
134A 135A 135A 136A 136A 137A 137A 138A 137A 138A 137A 138A 137A 138A 137A 138A 138A 139A 140A 140A 141A 141A 141A 142A 142A 142A 104B 104B 104B 105B 112B 112B 112B 112B 112B 114B	133A					→						BYE	IMS_A forwards BYE to IBCF_A
136A 137A 137A 138A 139A 139A 139A 140A 140A 141A 141A 142A 104B 104B 105B 105B 106B 107B 107B 109B 110B 111B 112B 112B 112B 114B	134A						→						IBCF_A forwards BYE to IBCF_B
137A 138A 139A 139A 139A 140A 141A 142A 142A 142A 142A 142A 142A 106B 106B 106B 106B 106B 108B 109B 109B 109B 109B 109B 109B 110B 111B 112B 112B 112B <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>></td><td></td><td></td><td></td><td></td><td></td></t<>								>					
138A 139A 139A 140A 140A 141A 142A 142A 142B 142A 142B 142A 142B 142A 142A 142A 142A 142B 142A 142A 142A 142A 142A 142A 142B 144B <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td>\rightarrow</td><td></td><td></td><td></td><td></td></t<>									\rightarrow				
139A 140A 140A 141A 141A 141A 142A 142A 104B 104B 105B 106B 107B 108B 109B 110B 112B 112B 114B								←					—
139A 140A 140A 200 OK IBCF_B forwards 200 OK response to IBCF_A 141A 200 OK IBCF_A forwards 200 OK response to IBCF_A 141A 200 OK IBCF_B forwards 200 OK response to IMS_A 142A 200 OK IBCF_B forwards 200 OK response to IMS_A 104B 200 OK IMS_A forwards 200 OK response to UE_B 105B User B leaves the 1-to-many Chat User B leaves the 1-to-many Chat 106B USER B leaves the 1-to-many Chat BYE IBCF_A forwards BYE to IBCF_A 106B Wish forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_A 107B Wish forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_A 107B Wish forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B 107B Wish forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B 111B Wish forwards 200 OK response to IBCF_B 200 OK IBCF_A forwards 200 OK response to IBCF_A 1112B Wish forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 114B Wish forwards 200 OK response Wish forwards 200 OK response 200 OK IBCF_A forwards 200 OK	130A						←	-				200 OK	
140A 141A 141A 141A 142A 142A 142A 142A 104B 105B 105B 106B 107B 107B 107B 108B 109B 111B 111B 111B 1118 113B 114B	139A					(200 OK	IBCF_B forwards 200 OK response
141A ionumber of the second secon	4.40.4											200.01	
141A 200 OK IMS_A forwards 200 OK response to UE_B 142A User B is informed that the 1-to-many Chat has ended 104B User B leaves the 1-to-many Chat 105B BYE 106B BYE 107B BYE 108B BYE 109B BYE 111B BYE 112B With the forwards BYE to IMS_A forwards BYE to IMS_B 113B BYE 114B IMS_A forwards 200 OK response to IMS_A	140A				←	-						200 OK	
142A User B is informed that the 1-to-many Chat has ended 104B User B leaves the 1-to-many Chat 105B User B leaves the 1-to-many Chat 106B BYE 107B BYE 108B BYE 109B BYE 110B BYE 111B BYE 112B BYE 113B B114B	141A									_		200 OK	IMS_A forwards 200 OK response
104B Imany Chat has ended 105B User B leaves the 1-to-many Chat 106B BYE 107B BYE 107B BYE 108B BYE 109B BYE 110B BYE 111B BYE 112B Imany Chat has ended 113B Imany Chat has ended 114B Imany Chat has ended Imany Chat has ended Ima	1404												
104B User B leaves the 1-to-many Chat 105B BYE 106B BYE 107B BYE 107B BYE 108B BYE 109B BYE 110B BYE 111B BYE 112B Control 113B Control 114B Control	142A										→		
106B 107B 107B 108B 109B 110B 111B 112B 113B 114B										←	_		User B leaves the 1-to-many Chat
106B 107B 107B 108B 109B 1010B 110B 111B 112B 113B 114B	105B				<──							BYE	
107B 108B 109B 109B 110B 111B 112B 113B 114B	106B					4						BYE	
108B 109B 109B 110B 110B 111B 112B 113B 114B 114B BYE IBCF_B forwards BYE to AS/IM_B BYE IIMS_B forwards 200 OK for BYE 200 OK AS/IM_B sends 200 OK for BYE 200 OK IIMS_B forwards 200 OK response to IBCF_B 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response						1	→						
109B 110B 110B 111B 112B 113B 114B 114B 119B 119B 1118 1128 1138 114B 114B 110B 114B 114B </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>·</td> <td>></td> <td></td> <td></td> <td></td> <td></td> <td></td>							·	>					
111B 200 OK IMS_B forwards 200 OK response to IBCF_B 112B 200 OK IBCF_B forwards 200 OK response to IBCF_A 113B 200 OK IBCF_A forwards 200 OK response to IMS_A 114B 200 OK IMS_A forwards 200 OK response						1	1		→				
112B to IBCF_B 113B III AB 114B IIII AB								←	_				—
112B 200 OK IBCF_B forwards 200 OK response to IBCF_A 113B 200 OK IBCF_A forwards 200 OK response to IMS_A 114B 200 OK IMS_A forwards 200 OK response	111B						←	-				200 OK	
113B to IBCF_A 114B to IMS_A 200 OK IMS_A forwards 200 OK response 200 OK IMS_A forwards 200 OK response	112B						1					200 OK	
to IMS_A 114B 200 OK IMS_A forwards 200 OK response						(1						to IBCF_A
114B 200 OK IMS_A forwards 200 OK response	113B				←	4						200 OK	
	114B											200 OK	
						1	1	1		\rightarrow			

Step					Direct	ion					Message	Comment
	U	U	A	I			-	A	U	U		
	s e	E	S/	M S	B C	B C	M S	S/	EB	s e		
	r		м	Ă	F	F	В	Ň		r		
	Α		Α		Α	В		В		В		
115B										\rightarrow		User B is informed that he has left
116B											NOTIFY	the 1-to-many Chat AS/IM_B sends NOTIFY to IMS_B
							←					to inform UE_A that User B has left
												the 1-to-many Chat
117B							_				NOTIFY	IMS_B forwards NOTIFY to IBCF_B
118B					←	_					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
119B				←							NOTIFY	IBCF_A forwards NOTIFY to IMS_A
120B			←								NOTIFY	IMS_A forwards NOTIFY to AS/IM_A
121B											NOTIFY	AS/IM_A returns, possibly
												modified, NOTIFY to IMS_A
122B		 ← 		_							BYE	IMS_A forwards NOTIFY to UE_A
123B	←	-										User A is informed that User B has left the 1-to-many Chat
124B		_		→							200 OK	UE_A sends 200 OK for NOTIFY
125B			/								200 OK	IMS_A forwards 200 OK response
1005											000.01/	to AS/IM_A
126B				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to
127B											200 OK	IMS_A IMS_A forwards 200 OK response
					→							to IBCF_A
128B						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
129B							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
130B								→			200 OK	IMS_B forwards 200 OK response to AS/IM_B
131B		→										User A leaves the 1-to-many Chat
132B											BYE	UE_A sends BYE to IMS_A to
												leave the 1-to-many Chat
133B			<								BYE	IMS_A forwards BYE to AS/IM_A
134B				\rightarrow							BYE	AS/IM_A returns, possibly modified, BYE to IMS_A
135B					→						BYE	IMS_A forwards BYE to IBCF_A
136B						→					BYE	IBCF_A forwards BYE to IBCF_B
137B							→				BYE	IBCF_B forwards BYE to IMS_B
138B								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
139B							←				200 OK	AS/IM_B sends 200 OK for BYE
140B						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
141B					←	-					200 OK	IBCF_B forwards 200 OK response to IBCF_A
142B				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
143B			←								200 OK	IMS_A forwards 200 OK response
144B											200 OK	to AS/IM_A AS/IM_A returns, possibly
				\rightarrow								modified, 200 OK response to IMS_A
145B		←		_							200 OK	IMS_A forwards 200 OK response to UE_A
146B	←	_										User A is informed that the 1-to-
												many Chat has ended

154

4.5.3.7 Adding participants to an already established 1-to-many chat session

155

4.5.3.7.1 Adding participants to an already established 1-to-many chat session - interworking

Interoperability T	est Descrip	tion										
Identifier:		CHAT_0015										
Summary:			service and messages exchange between									
-	two users	in their network can be perform	ned. User A invites User D to an already									
	establish	ed 1-to-many Chat										
Configuration:	CF_INT_											
SUT		nd IMS_B										
References	Test Pur		Specification Reference									
	TP_IMS_	5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119									
			(item 1 in 8 th numbered list)									
	TD_MSR	P_CHAT_0002	RFC 4975 [10],									
			clauses 5.4, 7.1 and 7.2									
			RFC 5547 [13]									
Use Case ref.:	UC_RCS	_6_I & UC_MSRP_02										
Pre-test		of IMS_A and of IMS B is config										
conditions:	UE_A, UE_C, UE_D and UE_B have IP bearers established to their respective											
		networks as per TS 186 011-2 [
			ly using userPRES according to table 1									
	UE_B, UE_D and UE_C are registered in IMS_B optionally using userPRES											
	according to table 1											
	UE_A, UE_B and UE_C shall support MSRP											
	UE_A is optionally configured to receive notifications with watcher information											
	UE_A is authorized to see presence information of UE_B, UE_D and UE_C											
	IMS_A is configured to contact AS_A											
		B is configured to contact AS_B										
		s is optionally configured for read										
		A is within the trust domain of IN										
			already performed capability discovery									
		process										
	 IMS_ 	A not configured for topology hid	ding									
Test Sequence:	Step											
	1	User A initiates a 1-to-many C	hat with User B and User C by sending initial									
		message										
	2	User A is informed that the 1-to-many Chat is established										
	3	User B is informed of incoming invitation from User A to join the 1-to-many										
	-	Chat										
	4		ge and accepts the 1-to-many Chat invitation									
	5	User A is notified with list of 1-										
	6	User B is notified with list of 1-										
	7	Users perform messaging in th										
	8	User A invites User D to join 1										
	9		g invitation from User A to join the 1-to-many									
		Chat										
	10	User D accepts the 1-to-many	Chat invitation									
	11	User A is notified with list of 1-										
	12	User D is notified with list of 1-										
	13	Users perform messaging in the 1-to-many Chat										
	13 14											
	14	User D leaves the 1-to-many (Chat									
	14 15	User D leaves the 1-to-many C User D is informed that he has	Chat Seft the 1-to-many Chat									
	14 15 16	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I	Chat b left the 1-to-many Chat has left the 1-to-many Chat									
	14 15 16 17A	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I User B leaves the 1-to-many (Chat b left the 1-to-many Chat has left the 1-to-many Chat Chat									
	14 15 16 17A 17B	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I User B leaves the 1-to-many (User A leaves the 1-to-many (Chat I left the 1-to-many Chat has left the 1-to-many Chat Chat Chat									
	14 15 16 17A 17B 18A	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I User B leaves the 1-to-many (User A leaves the 1-to-many (User B is informed that he has	Chat Is left the 1-to-many Chat has left the 1-to-many Chat Chat Chat Is left the 1-to-many Chat									
	14 15 16 17A 17B 18A 18B	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I User B leaves the 1-to-many (User A leaves the 1-to-many (User B is informed that he has User A is informed that he has	Chat Is left the 1-to-many Chat has left the 1-to-many Chat Chat Chat Is left the 1-to-many Chat Is left the 1-to-many Chat									
	14 15 16 17A 17B 18A	User D leaves the 1-to-many (User D is informed that he has User A is notified that User D I User B leaves the 1-to-many (User A leaves the 1-to-many (User B is informed that he has User A is informed that he has User A is notified that all other	Chat Is left the 1-to-many Chat has left the 1-to-many Chat Chat Chat Is left the 1-to-many Chat									

st Descript	ion							
20A	User A leaves the 1-to-many Chat							
20B	User B leaves the 1-to-many Chat							
20A	User A is informed that the 1-to-many Chat has ended							
20B	User B is informed that the 1-to-many Chat has ended							
Check								
1	TP_IMS_5107_03 in CFW step 41 (CANCEL):							
	ensure that {							
	when { UE A sends CANCEL to UE B }							
	then { IMS_B receives the CANCEL							
	not containing Route_header							
	indicating the S-CSCF_SIP_URI of IMS_A							
	}							
	}							
	20A 20B 20A 20B							

Step					Direc	tion					Message	Comment
	U	U	A	I	I	l	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e	Α		S A	C F	C F	S B	I M	D	е		
	r A		M	A	Ā	В	Ъ	B		r D		
1								Ē		Ī		Follow UC_RCS_6_I (1-79)
2												User A invites User D to join 1-to-
		7										many Chat
3											REFER	UE_A sends REFER message to
												IMS_A, with IM session identity
												(allocated for the current 1-to-
				\rightarrow								many chat), Refer-To header
												value equals to UE_D URI and
												Refer-Sub header value set to "false"
4											REFER	IMS_A forwards REFER to
4			←									AS/IM_A
5											200 OK	AS/IM_A responds with 200 OK
Ŭ				\rightarrow								to IMS_A
6		,									200 OK	IMS_A forwards the 200 OK
												response to UE_A
7											INVITE	AS/IM_A sends INVITE to UE_D
												with IM session identity (allocated
				\rightarrow								for the current 1-to-many Chat)
												and IM address of the Inviting IM
												UE (UE_A)
8			←								100 Trying	IMS_A responds with a 100
-											INVITE	Trying provisional response
9					\rightarrow						INVITE	IMS_A forwards INVITE to
10											100 Trying	IBCF_A IBCF_A responds with a 100
10				←	_						TOO TTYING	Trying provisional response
11											INVITE	IBCF_A forwards INVITE to
						\rightarrow						IBCF_B
12											100 Trying	IBCF_B responds with a 100
												Trying provisional response
13											INVITE	IBCF_B forwards INVITE to
							1					IMS_B
14						(100 Trying	IMS_B responds with a 100
						Ì						Trying provisional response
15								\rightarrow			INVITE	IMS_B forwards INVITE to
											100 Truin -	AS/IM_B
16							←	_			100 Trying	AS/IM_B responds with a 100
17												Trying provisional response
17							←				INVITE	AS/IM_B returns, possibly modified, INVITE to IMS_B
18											100 Trying	IMS_B responds with a 100
10								\rightarrow				Trying provisional response
19											INVITE	IMS_B forwards INVITE to UE_D
13	I	I	I	I	I	I			1	1		

Step					Direc	tion					Message	Comment
	U	U	Α		Ι	I	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	E D	s e		
	r	A	M	A	F	F	B	м	U	r		
	A		A		A	В	_	В		D		
20							←				100 Trying	UE_D optionally responds with a
21												100 Trying provisional response User D is informed of incoming
21									-	→		invitation from User A to join the 1-to-many Chat
22									~	-		User D accepts the 1-to-many Chat invitation
23							←				200 OK	UE_D responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific data for MSRP connection set up
24								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
25											200 OK	AS/IM_B returns, possibly
							←					modified, 200 OK response to IMS_B
26						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
27					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
28				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
29			←								200 OK	IMS_A forwards 200 OK
30				→							ACK	AS/IM_A acknowledges the
31					<u>`</u>						АСК	IMS_A forwards ACK to IBCF_A
32					1	\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
33							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
34								→			ACK	IMS_B forwards ACK to AS/IM_B
35							<u> </u>				ACK	AS/IM_B returns, possibly
36											ACK	modified, ACK to IMS_B IMS_B forwards ACK to UE_D
37											NOTIFY	AS/IM_A sends NOTIFY to UE_A
01				\rightarrow								with list of 1-to-many Chat participants
38		←									NOTIFY	IMS_A forwards the NOTIFY to UE_A
39	←											User A is notified with list of 1-to- many Chat participants
40		-	_	→							200 OK	UE_A responds with 200 OK to IMS_A
41			←								200 OK	IMS_A forwards the 200 OK
42							←				SUBSCRIBE	response to AS/IM_A UE_D subscribes to the
43								→			SUBSCRIBE	IMS_B forwards SUBSCRIBE to
44							~				SUBSCRIBE	AS/IM_B AS/IM_B returns, possibly
45						<u> </u>					SUBSCRIBE	modified, SUBSCRIBE to IMS_B IMS_B forwards SUBSCRIBE to
46					4						SUBSCRIBE	IBCF_B IBCF_B forwards SUBSCRIBE to
47											SUBSCRIBE	IBCF_A IBCF_A forwards SUBSCRIBE to
48				K							SUBSCRIBE	IMS_A IMS_A forwards SUBSCRIBE to
			←									AS/IM_A

Step					Direc	tion					Message	Comment
	U	U	Α	I	I	Ι	I	Α	U	U		
	S	E	S/	M	В	В	M	S/	E	S		
	e	Α	M	S A	C F	C F	S B	M	D	e		
	r A		A	~	A	В		B		r D		
49											200 OK	AS/IM_A sends 200 OK for SUBSCRIBE
50					—						200 OK	IMS_A forwards 200 OK
54											200 OK	response to IBCF_A IBCF_A forwards 200 OK
51						\rightarrow						response to IBCF_B
52							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
53											200 OK	IMS_B forwards 200 OK response to AS/IM_B
54											200 OK	AS/IM_B returns, possibly
01							←				200 01	modified, 200 OK response to IMS_B
55									→		200 OK	IMS_B forwards 200 OK response to UE_D
56											NOTIFY	AS/IM_A sends NOTIFY to UE_D
				\rightarrow								with list of 1-to-many Chat participants
57					→						NOTIFY	IMS_A forwards BYE to IBCF_A
58						\rightarrow					NOTIFY	IBCF_A forwards BYE to IBCF_B
59							\rightarrow				NOTIFY	IBCF_B forwards BYE to IMS_B
60								\rightarrow			NOTIFY	IMS_B forwards BYE to AS/IM_B
61							←				NOTIFY	AS/IM_B returns, possibly modified, BYE to IMS_B
62									→		NOTIFY	IMS_B forwards BYE to UE_D
63										→		User D is notified with list of 1-to- many Chat participants
64							←		_		200 OK	UE_D sends 200 OK for NOTIFY
65							<u> </u>	—			200 OK	IMS_B forwards 200 OK
66											200 OK	response to AS/IM_B AS/IM_B returns, possibly
							←					modified, 200 OK response to IMS_B
67						,					200 OK	IMS B forwards 200 OK
						<						response to IBCF_B
68					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
69				←							200 OK	IBCF_A forwards 200 OK
70											200 OK	response to IMS_A IMS_A forwards 200 OK
71												response to AS/IM_A Users perform messaging in the
/ 1												1-to-many Chat (see clause
	←		*		_		_			→		5.3.2.3 Chat 1 to many via MSRP
												to additional user - Interworking - CheckMSRP3)
72									←			User D leaves the 1-to-many
73							<i>(</i>				BYE	Chat UE_D sends BYE to IMS_B to
74											BYE	leave the 1-to-many Chat IMS_B forwards BYE to AS/IM_B
74							_				BYE	AS/IM_B returns, possibly
76						<u> </u>					BYE	modified, BYE to IMS_B IMS_B forwards BYE to IBCF_B
-											BYE	IBCF_B forwards BYE to IBCF_A
77											BYE	IBCF_B forwards BYE to IBCF_A
78			/								BYE	IMS_A forwards BYE to IMS_A
79												
80				→							200 OK	AS/IM_A sends 200 OK for BYE

Step					Direc	ction					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E D	U s e r D		
81					L C				L	Ť	200 OK	IMS_A forwards 200 OK
					_							response to IBCF_A
82						<u> </u>					200 OK	IBCF_A forwards 200 OK
						1						response to IBCF_B
83											200 OK	IBCF_B forwards 200 OK
							1					response to IMS_B
84								\rightarrow			200 OK	IMS_B forwards 200 OK
								-				response to AS/IM_B
85											200 OK	AS/IM_B returns, possibly
							(modified, 200 OK response to IMS_B
86											200 OK	IMS_B forwards 200 OK
									\rightarrow			response to UE_B
87												User D is informed that he has
										7		left the 1-to-many Chat
88											NOTIFY	AS/IM_A sends NOTIFY to IMS
				\rightarrow								_A to inform UE_A that User B
												has left the 1-to-many Chat
89		4									NOTIFY	IMS_A forwards the NOTIFY to
		L L			_							UE_A
90	←	_										User A is notified that User D has
	,											left the 1-to-many Chat
91				\rightarrow							200 OK	UE_A responds with 200 OK to IMS_A
92											200 OK	IMS_A forwards the 200 OK
			<									response to AS/IM_A
93												Continue UC_RCS_6_I (80A- 116B)

4.5.3.7.2 Adding participants to an already established 1-to-many chat session - roaming (optional)

	Interoperability Test De	escription							
Identifier:	TD_IMS_CHAT_0016								
Summary:	IMS network supports 1-to-many IM/Chat service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A invites User D to an already established 1-to-many Chat								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5107_03	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)							
Use Case ref.:	UC_RCS_6_R & UC_MSRP_04								
Pre-test conditions:	 IMS networks as per TS 186 011-2 UE_A and UE_D are registered in II table 1 UE_A, UE_B and UE_C shall support UE_B and UE_C are registered in II according to table 1 	e IP bearers established to their respective [9], clause 4.2.1 MS_A optionally using userPRES according to ort MSRP MS_B via IMS_A optionally using userPRES reive notifications with watcher information a information of UE_B and UE_C A B active authorization							

		Interoperability Test Description
	• UE	A, UE_C, UE_D and UE_B have already performed capability discovery
	proc	
		_A not configured for topology hiding
Test Sequence:	Step	
	1	User B initiates a 1-to-many Chat with User A and User C by sending initial
	•	message
	2	User B is informed that the 1-to-many Chat is established
	3	User A is informed of incoming invitation from User B to join the 1-to-many Chat
	4	User A reads the initial message and accepts the 1-to-many Chat invitation
	5	User B is notified with list of 1-to-many Chat participants
	6	User A is notified with list of 1-to-many Chat participants
	7	Users perform messaging in the 1-to-many Chat
	8	User B invites User D to join 1-to-many Chat
	9	User D is informed of incoming invitation from User B to join the 1-to-many
	9	Chat
	10	User D reads the initial message and accepts the 1-to-many Chat invitation
	11	User B is notified with list of 1-to-many Chat participants
	12	User D is notified with list of 1-to-many Chat participants
	13	Users perform messaging in the 1-to-many Chat
	14	User D leaves the 1-to-many Chat
	15	User D is informed that he has left the 1-to-many Chat
	16	User B is notified that user D has left the 1-to-many Chat
	17A	User A leaves the 1-to-many Chat
	17B	User B leaves the 1-to-many Chat
	18A	User A is informed that he has left the 1-to-many Chat
	18B	User B is informed that he has left the 1-to-many Chat
	19A	User B is notified that all other users have left the 1-to-many Chat
	19B	User A is notified that all other users have left the 1-to-many Chat
	20A	User B leaves the 1-to-many Chat
	20B	User A leaves the 1-to-many Chat
	21A	User B is informed that the 1-to-many Chat has ended
	21B	User A is informed that the 1-to-many Chat has ended
Conformance	Check	
Criteria:	1	TP_IMS_5107_03 in CFW step 56 (CANCEL):
		ensure that {
		when { UE_A sends CANCEL to UE_B }
		then { IMS_B receives the CANCEL
		not containing Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		}
		}

Step					Direc	tion					Message	Comment
	U s r D	U E D	A S/ I M	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
1												Follow UC_6_R (1-
2									←			User B invites User D to join 1-to- many Chat
3				~							REFER	UE_B sends REFER message to IMS_A, with IM session identity (allocated for the current 1-to-many chat), Refer-To header value equals to UE_D URI and Refer-Sub header value set to "false"
4					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
5						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B

Step					Directi	ion					Message	Comment
	U s	шU	A S/	I M	I B	l B	I M	A S/	UE	Us		
	e	D	3, I	S	С	С	S	3/ I	B	e		
	r D		M A	Α	F A	F B	В	M B		r B		
6							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
7								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
8							(200 OK	AS/IM_B responds with 200 OK to IMS_B
9						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
10					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
11				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
12									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
13							€				INVITE	AS/IM_B sends INVITE to UE_D with IM session identity (allocated for the current 1-to-many Chat) and IM address of the Inviting IM UE (UE_D)
14								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
15						←					INVITE	IMS_B forwards INVITE to IBCF_B
16							\rightarrow				100 Trying	IBCF_B responds with a 100 Trying provisional response
17					←						INVITE	IBCF_B forwards INVITE to IBCF_A
18						→					100 Trying	IBCF_A responds with a 100 Trying provisional response
19				←	-						INVITE	IBCF_A forwards INVITE to IMS_A
20					→						100 Trying	IMS_A responds with a 100 Trying provisional response
21			←								INVITE	IMS_A forwards INVITE to AS/IM_A
22				→							100 Trying	AS/IM_A responds with a 100 Trying provisional response
23				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
24			←								100 Trying	IMS_A responds with a 100 Trying provisional response
25		←									INVITE	IMS_A forwards INVITE to UE_D
26				\rightarrow							100 Trying	UE_D optionally responds with a 100 Trying provisional response
27	←	-										User D is informed of incoming invitation from User B to join the 1- to-many Chat
28		→										User D reads the initial message and accepts the 1-to-many Chat invitation
29											200 OK	UE_D responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform AS/IM_A with specific
30			←								200 OK	data for MSRP connection set up IMS_A forwards 200 OK response to AS/IM_A

	U					ion		-			Message	Comment
	S	U E	A S/	I M	I B	I B	I M	A S/	UE	U s		
	e	D	3, I	S	С	С	S	3/ I	В	e		
	r D		M A	A	F A	F B	В	MB		r B		
31											200 OK	AS/IM_A returns, possibly
												modified, 200 OK response to IMS_A
32					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
33						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
34							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
35								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
36							←				ACK	AS/IM_B acknowledges the receipt of 200 OK for INVITE
37						←					ACK	IMS_B forwards ACK to IBCF_B
38					←						ACK	IBCF_B forwards ACK to IBCF_A
39				←	-						ACK	IBCF_A forwards ACK to IMS_A
40			←	_							ACK	IMS_A forwards ACK to AS/IM_A
41				→							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
42		←		-							ACK	IMS_A forwards ACK to UE_D
43							←				NOTIFY	AS/IM_B sends NOTIFY to UE_B with list of 1-to-many Chat participants
44						←	_				NOTIFY	IMS_B forwards NOTIFY to IBCF_B
45					←	-					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
46				←	_						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
47											NOTIFY	IMS_A forwards NOTIFY to UE_B
48										→		User B is notified with list of 1-to- many Chat participants
49				~	-	-	-	-	-		200 OK	UE_B responds with 200 OK to IMS_A
50					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
51						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
52							→				200 OK	IBCF_B forwards 200 OK response to IMS_B
53								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
54				\rightarrow							SUBSCRIBE	UE_D subscribes to the conference event package
55			←	\neg							SUBSCRIBE	IMS_A forwards SUBSCRIBE to AS/IM_A
56				\rightarrow							SUBSCRIBE	AS/IM_A returns, possibly modified, SUBSCRIBE to IMS_A
57					→						SUBSCRIBE	IMS_A forwards SUBSCRIBE to IBCF_A
58						→					SUBSCRIBE	IBCF_A forwards SUBSCRIBE to IBCF_B

Step					Direct	tion					Message	Comment
	U s	U E	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	D	I	S	С	С	S	I	В	e		
	r D		M A	Α	F A	F B	В	M B		r B		
59							→				SUBSCRIBE	IBCF_B forwards SUBSCRIBE to IMS_B
60								\rightarrow			SUBSCRIBE	IMS_B forwards SUBSCRIBE to AS/IM_B
61							←				200 OK	AS/IM_B sends 200 OK for SUBSCRIBE
62						←	_				200 OK	IMS_B forwards 200 OK response to IBCF_B
63					←	_					200 OK	IBCF_B forwards 200 OK response to IBCF_A
64				←							200 OK	IBCF_A forwards 200 OK response to IMS_A
65			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
66				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
67		←									200 OK	IMS_A forwards 200 OK response to UE_D
68							(NOTIFY	AS/IM_B sends NOTIFY to UE_D with list of 1-to-many Chat participants
69						←					NOTIFY	IMS_B forwards BYE to IBCF_B
70					←						NOTIFY	IBCF_B forwards BYE to IBCF_A
71				←	_						NOTIFY	IBCF_A forwards BYE to IMS_A
72			←								NOTIFY	IMS_A forwards BYE to AS/IM_A
73				→							NOTIFY	AS/IM_A returns, possibly modified, BYE to IMS_A
74		←									NOTIFY	IMS_A forwards BYE to UE_D
75		=										User D is notified with list of 1-to- many Chat participants
76		-	-	→							200 OK	UE_D sends 200 OK for NOTIFY
77			←	_							200 OK	IMS_A forwards 200 OK response to AS/IM_A
78				\rightarrow							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
79					→						200 OK	IMS_A forwards 200 OK response to IBCF_A
80						→					200 OK	IBCF_A forwards 200 OK response to IBCF_B
81							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
82								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
83								*		→		Users perform messaging in the 1- to-many Chat (see clause 5.3.2.4 Chat 1 to many via MSRP to additional user - Roaming)
84		→										User D leaves the 1-to-many Chat

Step					Directi	on					Message	Comment
	U s	UE	A S/	I M	I B	I B	I M	A S/	U E	U s		
	e	D	1	S	С	С	S	1	В	e		
	r D		M	Α	F A	F B	В	M B		r B		
85		<u> </u>		→							BYE	UE_D sends BYE to IMS_A to leave the 1-to-many Chat
86			←	_							BYE	IMS_A forwards BYE to AS/IM_A
87				→							BYE	AS/IM_A returns, possibly
88					×						BYE	modified, BYE to IMS_A IMS_A forwards BYE to IBCF_A
89						*					BYE	IBCF_A forwards BYE to IBCF_B
90							→				BYE	IBCF_B forwards BYE to IMS_B
91								÷			BYE	IMS_B forwards BYE to AS/IM_B
92							~				200 OK	AS/IM_B sends 200 OK for BYE
93											200 OK	IMS_B forwards 200 OK response
												to IBCF_B
94					<u> </u>						200 OK	IBCF_B forwards 200 OK response to IBCF_A
95				~							200 OK	IBCF_A forwards 200 OK response to IMS_A
96			<								200 OK	IMS_A forwards 200 OK response to AS/IM_A
97				→							200 OK	AS/IM_A returns, possibly modified, 200 OK response to IMS_A
98		←		_							200 OK	IMS_A forwards 200 OK response to UE_D
99		=										User D is informed that he has left the 1-to-many Chat
100							←	-			NOTIFY	AS/IM_B sends NOTIFY to IMS _B to inform UE_B that User D has left the 1-to-many Chat
101						<	-				NOTIFY	IMS_B forwards NOTIFY to IBCF_B
102					←	-					NOTIFY	IBCF_B forwards NOTIFY to IBCF_A
103				←	-						NOTIFY	IBCF_A forwards NOTIFY to IMS_A
104									→		NOTIFY	IMS_A forwards NOTIFY to UE_B
105										→		User B is notified that user D has left the 1-to-many Chat
106				<					-		200 OK	UE_B responds with 200 OK to IMS_A
107					×						200 OK	IMS_A forwards 200 OK response to IBCF_A
108						*					200 OK	IBCF_A forwards 200 OK response to IBCF_B
109											200 OK	IBCF_B forwards 200 OK response to IMS_B
110								*			200 OK	IMS_B forwards 200 OK response
111												to AS/IM_B Continue UC_RCS_6_R (104A-
												146B)

4.5.4 RCS-e services during a call

4.5.4.1 Video sharing

4.5.4.1.1 Video sharing- interworking

Identifier:		Interoperability Tes _SHARE_0001										
Summary:			a convice and managere evolution the									
Summary:			service and messages exchange between two									
	users in their networks can be performed. User A starts video sharing with User B during a voice call											
	during a	voice call										
Configuration:	CF_INT_	AS										
SUT		Ind IMS_B										
References	Test Pu		Specification Reference									
		5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11									
			(1 st numbered list)									
	TP IMS	_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5									
		_0100_00	(item 4 in 1 st numbered list)									
	TD IMS	_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89									
		_5115_08	(4 th numbered list)									
Line Case ref :		2.0.1	(4 ^{ar} numbered list)									
Use Case ref.:	UC_RCS	D_0_I										
Dro toot												
Pre-test conditions:			configured according to table 1									
conditions:			rs established to their respective IMS networks as									
	per TS 186 011-2 [9], clause 4.2.1											
	 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 											
	 UE_B is registered in IMS_B optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information 											
		A is authorized to see pres										
		_A is configured to contact										
	 IMS 	_B is configured to contact	AS_B									
	 AS_ 	B is optionally configured for	or reactive authorization									
	IMS_A is within the trust domain of IMS_B											
	 UE_A and UE_B have already performed capability discovery process 											
	IMS_A not configured for topology hiding											
Test Sequence:	Step											
	1A	User A establishes voice	call with user B									
	1B	User B establishes voice	call with user A									
	2	User A requests to share	video with user B									
	3											
			video with user A									
	4	User B accepts to share										
	4 5	User B accepts to share User A is informed that re	video with user A equest has been answered									
	4 5 6	User B accepts to share User A is informed that re Video sharing starts	equest has been answered									
	4 5 6 7A	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin	equest has been answered									
	4 5 6 7A 8A	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that vi	equest has been answered g deo sharing has terminated									
	4 5 6 7A 8A 9A	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that vi User A is informed that vi	equest has been answered g ideo sharing has terminated ideo sharing has terminated									
	4 5 6 7A 8A 9A 10A	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that v User A is informed that v User A initiates voice call	equest has been answered g ideo sharing has terminated ideo sharing has terminated termination									
	4 5 6 7A 8A 9A 10A 7B	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that v User A is informed that v User A initiates voice call User B ends video sharin	equest has been answered g ideo sharing has terminated ideo sharing has terminated termination g									
	4 5 6 7A 8A 9A 10A 7B 8B	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that v User A is informed that v User A initiates voice call User B ends video sharin User A is informed that v	equest has been answered g ideo sharing has terminated ideo sharing has terminated termination g ideo sharing has terminated									
	4 5 6 7A 8A 9A 10A 7B	User B accepts to share User A is informed that re Video sharing starts User A ends video sharin User B is informed that v User A is informed that v User A initiates voice call User B ends video sharin User A is informed that v	equest has been answered g deo sharing has terminated ideo sharing has terminated termination g deo sharing has terminated ideo sharing has terminated									

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_IMS_5097_01 in CFW step 15 (INVITE):
		ensure that {
		when { UE_A sends an initial INVITE to UE_B }
		then { IMS_B receives the initial INVITE
		not containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		containing a P-Charging-Vector_header
		(containing an icid-value_parameter and containing a orig-ioi_parameter indicating IMS_A and
		not containing an access-network-charging-info_parameter and
		not containing an access-network-charging-into_parameter and not containing a term-ioi_parameter) and
		containing a Record-Route_header
		indicating the originating S-CSCF_SIP_URI }
		}
	2	TP_IMS_5108_03 in CFW step 19 (INVITE)
		ensure that {
		when { IMS_B receives an initial INVITE from IMS_A addressed_to UE_B }
		then { IMS_B sends the initial INVITE to AS_B
		containing a topmost Route_header
		indicating the SIP_URI of AS_B and
		containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_B and
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and not including a term-ioi_parameter }
		100 molduling a term-toi_parameter }
	3	
	•	ensure that {
		when { IMS_B receives 200_response from AS_B addressed_to UE_A }
		then { IMS_B sends the 200_response to IMS_A
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
	1	including a term-ioi_parameter
	1	indicating operator_identifier of IMS_BIUT_ }

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1A	$\left \left(\leftarrow \right) \right $							→		User A establishes a voice call to user B
1B	⊬−	_	_			_		→		User B establishes a voice call to user A
2		\rightarrow								User A requests to share video with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share video with user B
4		/				ĺ			100 Trying	IMS_A responds with a 100 Trying provisional
						ļ				response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←						100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow	Í			INVITE	IBCF_A forwards INVITE to IBCF_B
8				←	_				100 Trying	IBCF_B responds with a 100 Trying provisional response
9						→			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11							\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
12						←			100 Trying	UE_B responds with a 100 Trying provisional response

Step			Di	rectio	n			Message	Comment
		UI	I		1	U	U		
		E M A S				EB	S		
	e r	A S			S B	в	e r		
	Å		A	B			B		
13									User B is requested to accept to share video
14					←			180 Ringing	UE_B responds to initial INVITE with 180
15					ſ			180 Ringing	Ringing to indicate that it has started alerting
15				÷				160 Kinging	IMS_B forwards 180 Ringing response to IBCF_B
16			ŧ	<u>. </u>				180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17		é	<u>.</u>					180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18		~						180 Ringing	IMS_A forwards the 180 Ringing response to
19									UE_A User B accepts to share video
20								200 OK	UE_B responds INVITE with 200 OK to indicate
20					←				that the request has been accepted
21				÷				200 OK	IMS_B forwards 200 OK response to IBCF_B
22			ŧ	<u> </u>				200 OK	IBCF_B forwards 200 OK response to IBCF_A
23		€	<u>,</u>					200 OK	IBCF_A forwards 200 OK response to IMS_A
24		←						200 OK	IMS_A forwards 200 OK response to UE_A
25	←								User A is informed that request has been answered
26								ACK	UE_A acknowledges the receipt of 200 OK for INVITE
27		-	\longrightarrow					ACK	IMS_A forwards ACK to IBCF_A
28			-	\longrightarrow				ACK	IBCF_A forwards ACK to IBCF_B
29				-	>			ACK	IBCF_B forwards ACK to IMS_B
30						\rightarrow		ACK	IMS_B forwards ACK to UE_B
31							→		Video sharing starts
32A		*		ĺ					User A ends video sharing
33A		\rightarrow						BYE	UE_A releases the call with BYE
34A		-	\longrightarrow					BYE	IMS_A forwards BYE to IBCF_A
35A			ŀ	\longrightarrow				BYE	IBCF_A forwards BYE to IBCF_B
36A				-	\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
37A						\rightarrow		BYE	IMS_B forwards BYE to UE_B
38A							→		User B is informed that video sharing has ended
39A					←			200 OK	UE_B sends 200 OK for BYE
40A				÷				200 OK	IMS_B forwards 200 OK response to IBCF_B
41A			ŧ	<u>. </u>				200 OK	IBCF_B forwards 200 OK response to IBCF_A
42A		€	<u>,</u>					200 OK	IBCF_A forwards 200 OK response to IMS_A
43A		←						200 OK	IMS_A forwards the 200 OK response to UE_A
44A									User A is informed that video sharing has ended
45A					←			OPTIONS	UE_B sends OPTIONS to IMS_B to verify availability of video sharing capability of the
46A								OPTIONS	UE_A IMS_B forwards OPTIONS to IBCF_B
46A 47A]			OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
47A 48A								OPTIONS	IBCF_A forwards OPTIONS to IMS_A
40A 49A			•					OPTIONS	IMS_A forwards OPTIONS to UE_A
49A 50A								200 OK	UE_A responds 200 OK to IMS_A with updated
									capabilities
51A		-	\longrightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
52A			ŀ	\longrightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
53A				⊢	\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
54A						\rightarrow		200 OK	IMS_B forwards 200 OK to UE_B
55A	₭						\rightarrow		Voice call termination initiated by user A
32B						←			User B ends video sharing

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
33B						←			BYE	UE_B releases the call with BYE
34B					←	_			BYE	IMS_B forwards BYE to IBCF_B
35B				←					BYE	IBCF_B forwards BYE to IBCF_A
36B			←						BYE	IBCF_A forwards BYE to IMS_A
37B		←							BYE	IMS_A forwards BYE to UE_A
38B	₩	_								User A is informed that video sharing has ended
39B			\rightarrow						200 OK	UE_A sends 200 OK for BYE
40B				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
41B				-	\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
42B						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
43B							\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
44B								\rightarrow		User B is informed that video sharing has ended
45B			→						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of video sharing capability of the UE_B
46B				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
47B					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
48B						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
49B							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
50B						←	_		200 OK	UE_B responds with 200 OK to IMS_B with updated capabilities
51B					←	_			200 OK	IMS_B forwards 200 OK to IBCF_B
52B				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
53B			\leftarrow						200 OK	IBCF_A forwards 200 OK to IMS_A
54B		←							200 OK	IMS_A forwards 200 OK to UE_A
55B										Voice call termination initiated by user B

4.5.4.1.2 Video sharing- roaming (optional)

	Interoperability Test D	Description									
Identifier:	TD_IMS_SHARE_0002										
Summary:	IMS network supports Video sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call										
Configuration:	CF_ROAM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1									
		(1 st numbered list)									
	TP_IMS_5110_01	TS 124 229 [1], clause 5.4.3.3 ¶79									
		(after 6 th dashed list)									
Use Case ref.:	UC_RCS_8_R										
Pre-test conditions:	 per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A option UE_B is registered in IMS_B via IM table 1 	established to their respective IMS networks as nally using userPRES according to table 1 IS_A optionally using userPRES according to ceive notifications with watcher information e information of UE_B _A _B									

		Interoperability Test Description										
	 IMS 	_A is within the trust domain of IMS_B										
		A and UE_B have already performed capability discovery process										
		_A not configured for topology hiding										
Test Sequence:	Step											
	1A	User A establishes voice call with user B										
	1B	User B establishes voice call with user A										
	2	User A requests to share video with user B										
	3	User B is requested to accept to share video										
	4	User B accepts to share video with user A										
	5	User A is informed that request has been answered										
	6	Video sharing starts										
	7A	User A ends video sharing										
	8A	User B is informed that video sharing has terminated										
	9A	User A is informed that video sharing has terminated										
	10A	User A initiates voice call termination										
	7B	User B ends video sharing										
	8B	User A is informed that video sharing has terminated										
	9B	User B is informed that video sharing has terminated										
	10B	User B initiates voice call termination										
^ <i>i</i>												
Conformance Criteria:	Check											
ontena.	1	TP_IMS_5046_01 in CFW step 6 (INVITE)										
	•	ensure that {										
		when { IMS_A receives an initial INVITE from UE_B }										
		then { IMS_A sends the INVITE to IMS_B										
		containing a Route_header										
		not indicating the P-CSCF_SIP_URI of IMS_A and										
		containing a Route_header										
		indicating the "list of Service Route header URIs										
		from the registration" and										
		containing an additional Via_header										
		containing (the P-CSCF_via_port_number and										
		(the P-CSCF-FQDN_address or the P-CSCF-ID address) of MC A and										
		the P-CSCF-IP_address)) of IMS_A and containing an additional topmost Record-Route_header										
		indicating (the P-CSCF_port_number										
		where it awaits subsequent requests' from UE_A and										
		(the P-CSCF-FQDN_address or										
		the P-CSCF-IP_address)) of IMS_A and										
		not containing P-Preferred-Identity_header and										
		containing a P-Asserted-Identity_header										
		containing an address of UE_B and										
		containing a P-Charging-Vector_header										
		containing an icid-value_parameter }										
		}										
	2	TP_IMS_5110_01 in CFW step 43 (200 OK)										
		ensure that {										
		when { IMS_A receives a 200_response from AS_A addressed_to UE_B }										
		then { IMS_A sends the 200_response to IMS_B }										
		}										

Step				Dire	ction				Message	Comment
	U	U	Ι	Ι	-	Ι	U	U		
	S	Е	М	В	В	м	Е	S		
	е	Α	S	C	C	S	В	е		
	r		Α	F	F	В		r		
	Α			Α	В			В		
1A	←	_				-	_	\rightarrow		User A sets up a voice call to user B
1B	\downarrow				_	_		\uparrow		User B sets up a voice call to user A
2		\rightarrow								User A requests to share video with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share video with user B

Step				Dir	ection				Message	Comment
	U	U C				I	Ū	U		
	s e	E A	M S	B C	B	M S	E B	s e		
	r		Ă	F	F	В		r		
	Α			Α	B			В		
4		←	_						100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			<u> </u>	_					100 Trying	IBCF_A responds with a 100 Trying provisional
-			l l							
7				-	\rightarrow				INVITE 100 Trying	IBCF_A forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying provisional
0				÷					100 Hying	response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional
11					<u> </u>				INVITE	response IMS_B forwards INVITE to IBCF_B
12					Ĩ				100 Trying	IBCF_B responds with a 100 Trying provisional
						\rightarrow				response
13				÷	—					IBCF_B forwards INVITE to IBCF_A
14				-	\longrightarrow				100 Trying	IBCF_A responds with a 100 Trying provisional response
15			←	_					INVITE	IBCF_A forwards INVITE to IMS_A
16									100 Trying	IMS_A responds with a 100 Trying provisional
47				1						
17 18							\rightarrow		INVITE 100 Trying	IMS_A forwards INVITE to UE_B UE_B responds with a 100 Trying provisional
10			\leftarrow	- -			_		100 Hying	response
19							-	→		User B is requested to accept to share video
20			←	_ _					180 Ringing	UE_B responds to initial INVITE with 180
21									180 Ringing	Ringing to indicate that it has started alerting IMS_A forwards 180 Ringing response to
21				\rightarrow					100 Kinging	IBCF_A
22				_	\rightarrow				180 Ringing	IBCF_A forwards 180 Ringing response to
23									180 Ringing	IBCF_B IBCF_B forwards 180 Ringing response to
20						\rightarrow			100 Kinging	IMS_B
24					←				180 Ringing	IMS_B forwards the 180 Ringing response to
25									180 Ringing	IBCF_B IBCF_B forwards 180 Ringing response to
25				÷						IBCF_B forwards 180 Kinging response to
26			←	-					180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27		←	_						180 Ringing	IMS_A forwards 180 Ringing response to UE_A
28							←	_		User B accepts to share video
29			←	_ -					200 OK	UE_B responds INVITE with 200 OK to indicate
30				\rightarrow					200 OK	that the request has been accepted IMS_A forwards 200 OK response to IBCF_A
31				· _	\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
32						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
33					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
34				÷	—				200 OK	IBCF_B forwards 200 OK response to IBCF_A
35			(-					200 OK	IBCF_A forwards 200 OK response to IMS_A
36		-								IMS_A forwards 200 OK response to UE_A User A is informed that request has been
37	←									answered
38			\rightarrow						ACK	UE_A acknowledges the receipt of 200 OK for INVITE
39				\rightarrow	ļ				ACK	IMS_A forwards ACK to IBCF_A
40				-	\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
41						\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
42 43				2	K				ACK ACK	IMS_B forwards ACK to IBCF_B IBCF_B forwards ACK to IBCF_A
43	I	I	I	٦ ال		I	I	I	AUN	IDUI _D IUIWAIUS AUN IU IDUF_A

Step			D	irectio	on				Message	Comment
	U	UI			I	I	U	U		
	S	E N				M	E	S		
	e r	A S				S B	В	e r		
	Å				3			B		
44		•	<u> </u>						ACK	IBCF_A forwards ACK to IMS_A
45		-)		ACK	IMS_A forwards ACK to UE_B
46	_	_					-	→		Video sharing starts
47A	←						-	→		User A ends video sharing
48A		\rightarrow							BYE	UE_A releases the call with BYE
49A		-	\longrightarrow						BYE	IMS_A forwards BYE to IBCF_A
50A				\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
51A					\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
52A					←				BYE	IMS_B forwards BYE to IBCF_B
53A				\leftarrow					BYE	IBCF_B forwards BYE to IBCF_A
54A		ť	(BYE	IBCF_A forwards BYE to IMS_A
55A		-					1		BYE	IMS_A forwards BYE to UE_B User B is informed that video sharing has ended
56A									200 OK	UE_B sends 200 OK for BYE
57A 58A			<u> </u>						200 OK 200 OK	IMS_A forwards 200 OK response to IBCF_A
58A 59A									200 OK 200 OK	IBCF_A forwards 200 OK response to IBCF_A
60A				-	,				200 OK 200 OK	IBCF_B forwards 200 OK response to IBCI_B
61A					<u> </u>				200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A				\leftarrow					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63A			<u> </u>	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
64A		←							200 OK	IMS_A forwards the 200 OK response to UE_A
65A							Ì			Video sharing terminates
66A									OPTIONS	UE_B sends OPTIONS to IMS_A to verify
		•	<u> </u>				1			availability of video sharing capability of the
67A									OPTIONS	UE_A IMS_A forwards OPTIONS to IBCF_A
68A				\longrightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A				,	>				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70A					,				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71A				←	-				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72A		•	<u> </u>						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73A		←							OPTIONS	IMS_A forwards OPTIONS to UE_A
74A									200 OK	UE_A responds 200 OK to IMS_A with updated
		1								capabilities
75A		-	\longrightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
76A				\rightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
77A									200 OK 200 OK	IBCF_B forwards 200 OK to IMS_B IMS_B forwards 200 OK to IBCF_B
78A 79A									200 OK 200 OK	IBCF_B forwards 200 OK to IBCF_B
79A 80A			<u> </u>	<u> </u>					200 OK 200 OK	IBCF_B forwards 200 OK to IBCF_A
80A 81A			<u> </u>			、			200 OK 200 OK	IMS_A forwards 200 OK to IMS_A
82A							1		200 01	User A terminates voice call
47B										User B ends video sharing
48B			(BYE	UE_B releases the call with BYE
49B		-	\longrightarrow						BYE	IMS_A forwards BYE to IBCF_A
50B				\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
51B					\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
52B					←				BYE	IMS_B forwards BYE to IBCF_B
53B				\leftarrow					BYE	IBCF_B forwards BYE to IBCF_A
54B		•	<u> </u>						BYE	IBCF_A forwards BYE to IMS_A
55B		←							BYE	IMS_A forwards BYE to UE_A
56B										User A is informed that video sharing has ended
57B		\rightarrow							200 OK	UE_A sends 200 OK for BYE
58B	I		\longrightarrow	l			I		200 OK	IMS_A forwards 200 OK response to IBCF_A

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
59B				·	→				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B					←	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
62B				\leftarrow	-				200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
64B							\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
65B	←			_ -	_	_	_	\rightarrow		Video sharing terminates
66B									OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of video sharing capability of the UE_B
67B				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68B					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69B						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70B					←	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71B				\leftarrow	-				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72B			\leftarrow	-					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B				-	_	_	\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
74B			←				_		200 OK	UE_B responds with 200 OK to IMS_A with updated capabilities
75B				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76B					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77B						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78B					←				200 OK	IMS_B forwards 200 OK to IBCF_B
79B				\leftarrow	-				200 OK	IBCF_B forwards 200 OK to IBCF_A
80B			\leftarrow	-					200 OK	IBCF_A forwards 200 OK to IMS_A
81B		<							200 OK	IMS_A forwards 200 OK to UE_A
82B	(←						_	\rightarrow		User B terminates voice call

4.5.4.2 Video sharing rejection

4.5.4.2.1 Video sharing rejection - interworking

	Interoperability Test Desc	ription									
Identifier:	TD_IMS_SHARE_0003										
Summary:	IMS network supports Video sharing service and messages exchange between two users in their networks can be performed. User A starts video sharing with User B during a voice call, but user B rejects the invitation										
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5									
		(item 4 in 1 st numbered list)									
Use Case ref.:	UC_RCS_8_I										
Pre-test conditions:	 HSS of IMS_A and of IMS B is configure UE_A and UE_B have IP bearers estate per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally UE_B is registered in IMS_B optionally UE_A is optionally configured to received UE_A is authorized to see presence inf IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive 	blished to their respective IMS networks as using userPRES according to table 1 using userPRES according to table 1 e notifications with watcher information formation of UE_B									

		Interoperability Test Description
	 IMS_ 	A is within the trust domain of IMS_B
	• UE_/	A and UE_B have already performed capability discovery process
	 IMS_ 	_A not configured for topology hiding
Test Sequence:	Step	
	1	User A invites user B to 1-to-1 chat session
	2	User B automatically accepts 1-to-1 chat invitation
	3	Verify that Users perform chatting
	4	User A initiates an Ad-hoc IM conference with user B
	5	Verify that User A is informed that the Ad Hoc IM Conference is established
	6	Verify that User B is informed of incoming invitation from User A to join the Ad-hoc IM Conference
	7	User B joins the Ad-hoc IM Conference (automatically)
	8	Verify that User A is notified that User B has joined the Ad-hoc IM Conference
	9	Verify that User A informed that 1-to-1 chat session with user B has ended
	10	Verify that User B informed that 1-to-1 chat session with user A has ended
	11	Verify that Users perform IM/chat service in the Ad-hoc IM Conference
	12	User B leaves the Ad-hoc IM Conference
	13	Verify that User B is informed that the Ad-hoc IM Conference has ended
	14	Verify that User A is notified that user B has left the Ad-hoc IM Conference
	15	User A leaves the Ad-hoc IM Conference
	16	Verify that User A is informed that the Ad-hoc IM Conference has ended
Conformance Criteria:	Check	
	1	TP_IMS_5108_03 in CFW step 58 (INVITE)
		ensure that {
		when { IMS_B receives an initial INVITE from IMS_A addressed_to UE_B }
		then { IMS_B sends the initial INVITE to AS_B
		containing a topmost Route_header
		indicating the SIP_URI of AS_B and
		containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_B and
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter }
		V

Step				Dire	tion				Message	Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1A	\leftarrow							\uparrow		User A establishes a voice call to user B
1B	- →	_	_	-		_	_	→		User B establishes a voice call to user A
2		\rightarrow								User A requests to share video with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share video with user B
4		4							100 Trying	IMS_A responds with a 100 Trying provisional
		Ì								response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←	-					100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
8				←	-				100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11							\rightarrow		INVITE	IMS_B forwards INVITE to UE_B

Step				[Direct	ion				Message	Comment
	U			I	I	Ι	I	U	U	_	
	s e				B C	B C	M S	E B	s e		
	r	1	-		F	F	в	5	r		
	Α				A	В			В		
12							←			100 Trying	UE_B responds with a 100 Trying provisional
13									->		response User B is requested to accept to share video
14									1	180 Ringing	UE_B responds to initial INVITE with 180
							K			i e e i i i i gili g	Ringing to indicate that it has started alerting
15						←				180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
16					←					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17				←						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18			<u> </u>							180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19								-	_		User B accepts to share video
20							,	Ì		200 OK	UE_B responds INVITE with 200 OK to indicate
											that the request has been accepted
21						←	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
22					←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
23				\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
24			<						_	200 OK	IMS_A forwards 200 OK response to UE_A
25	ŧ										User A is informed that request has been answered
26										АСК	UE_A acknowledges the receipt of 200 OK for
20			\rightarrow								INVITE
27				\longrightarrow						ACK	IMS_A forwards ACK to IBCF_A
28					\longrightarrow					ACK	IBCF_A forwards ACK to IBCF_B
29							→			ACK	IBCF_B forwards ACK to IMS_B
30								→	_	ACK	IMS_B forwards ACK to UE_B
31									→		Video sharing starts
32A										DVE	User A ends video sharing
33A 34A			>	、						BYE BYE	UE_A releases the call with BYE
34A 35A				\rightarrow						BYE	IMS_A forwards BYE to IBCF_A IBCF_A forwards BYE to IBCF_B
36A					,		`			BYE	IBCF_B forwards BYE to IBCF_B
37A										BYE	IMS_B forwards BYE to UE_B
38A								1	_		User B is informed that video sharing has ended
39A							4		1	200 OK	UE_B sends 200 OK for BYE
40A						<u> </u>	_`			200 OK	IMS_B forwards 200 OK response to IBCF_B
41A					←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
42A				\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
43A			←							200 OK	IMS_A forwards the 200 OK response to UE_A
44A											User A is informed that video sharing has ended
45A										OPTIONS	UE_B sends OPTIONS to IMS_B to verify
							(availability of video sharing capability of the UE_A
46A						<u> </u>				OPTIONS	IMS_B forwards OPTIONS to IBCF_B
47A					<i>(</i>					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
48A				\leftarrow	ľ					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
49A			<u> </u>	-						OPTIONS	IMS_A forwards OPTIONS to UE_A
50A										200 OK	UE_A responds 200 OK to IMS_A with updated
											capabilities
51A				\longrightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
52A					$ \longrightarrow$					200 OK	IBCF_A forwards 200 OK to IBCF_B
53A							\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
54A								\rightarrow		200 OK	IMS_B forwards 200 OK to UE_B
55A	E F								\rightarrow		Voice call termination initiated by user A

Step				Dire	ction				Message	Comment
	U	U	Ι	I	Ι	I	U	U	Ŭ	
	S	Е	М	В	В	Μ	Е	S		
	е	Α	S	C	C	S	В	е		
	r A		Α	F	F	В		r B		
32B	Î			Î	Ť		_ ←			User B ends video sharing
33B						←	_		BYE	UE_B releases the call with BYE
34B					←	_			BYE	IMS_B forwards BYE to IBCF_B
35B				←	-1				BYE	IBCF_B forwards BYE to IBCF_A
36B			\leftarrow	-	Ì				BYE	IBCF_A forwards BYE to IMS_A
37B		←							BYE	IMS_A forwards BYE to UE_A
38B	₩	_								User A is informed that video sharing has ended
39B			\rightarrow						200 OK	UE_A sends 200 OK for BYE
40B				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
41B					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
42B						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
43B						-	\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
44B							_	→		User B is informed that video sharing has ended
45B			→						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of video sharing capability of the UE_B
46B				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
47B					\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
48B						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
49B							\rightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
50B						←			200 OK	UE_B responds with 200 OK to IMS_B with updated capabilities
51B					←				200 OK	IMS_B forwards 200 OK to IBCF_B
52B				\leftarrow					200 OK	IBCF_B forwards 200 OK to IBCF_A
53B			\leftarrow						200 OK	IBCF_A forwards 200 OK to IMS_A
54B		←							200 OK	IMS_A forwards 200 OK to UE_A
55B										Voice call termination initiated by user B

4.5.4.2.2 Video sharing rejection - roaming (optional)

	Interoperability	Test Description								
Identifier:	TD_IMS_SHARE_0004									
Summary:	IMS network supports Video sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call, but user B rejects the invitation									
Configuration:	CF_ROAM_AS (OPTIONAL)									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5070_01	TS 124 229 [1], clause 5.2.7.3 ¶3								
Use Case ref.:	UC_RCS_8_R									
Pre-test conditions:	 UE_A and UE_B have IP be per TS 186 011-2 [9], clause UE_A is registered in IMS_A UE_B is registered in IMS_E table 1 UE_A is optionally configure UE_A is authorized to see p IMS_A is configured to contain IMS_B is configured to contain IMS_B is optionally configure IMS_B is optionally configure IMS_A is within the trust dominant optimization of the set o	A optionally using userPRES according to table 1 B via IMS_A optionally using userPRES according to ed to receive notifications with watcher information resence information of UE_B act AS_A act AS_B d for reactive authorization main of IMS_B dy performed capability discovery process								

		Interoperability Test Description
Fest Sequence:	Step	
	1	User B invites user A to 1-to-1 chat session
	2	User A automatically accepts 1-to-1 chat invitation
	3	Verify that Users perform chatting
	4	User B initiates an Ad-hoc IM conference with user A
	5	Verify that User B is informed that the Ad Hoc IM Conference is established
	6	Verify that User A is informed of incoming invitation from User B to join the Ad-hoc IM Conference
	7	User A joins the Ad-hoc IM Conference (automatically)
	8	Verify that User B is notified that User A has joined the Ad-hoc IM Conference
	9	Verify that User B informed that 1-to-1 chat session with user A has ended
	10	Verify that User A informed that 1-to-1 chat session with user B has ended
	11	Verify that Users perform IM/chat service in the Ad-hoc IM Conference
	12	User A leaves the Ad-hoc IM Conference
	13	Verify that User A is informed that the Ad-hoc IM Conference has ended
	14	Verify that User B is notified that user A has left the Ad-hoc IM Conference
	15	User B leaves the Ad-hoc IM Conference
	16	Verify that User B is informed that the Ad-hoc IM Conference has ended
Conformance Criteria:	Check	
	1	TP_IMS_5070_01 in CFW step 79 (100 Trying)
		ensure that {
		when { IMS_A receives an initial INVITE from IMS_B }
		then { IMS_A sends a 100_response to IMS_B
		when { IMS_A receives an initial INVITE from IMS_B }

Step				Dire	ction				Message	Comment
	U s e	U E A	I M S	I B C	I B C	I M S	U E B	U s e		
	r A		Ă	F	F	В	_	r B		
1A	-		·					\rightarrow		User A sets up a voice call to user B
1B	\leftarrow		_	_				\rightarrow	-	User B sets up a voice call to user A
2	-	→								User A requests to share video with user B
3		-	→						INVITE	UE_A sends INVITE to share video with user B
4		←							100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←						100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
8				←					100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←	_			100 Trying	IMS_B responds with a 100 Trying provisional response
11					←				INVITE	IMS_B forwards INVITE to IBCF_B
12						_			100 Trying	IBCF_B responds with a 100 Trying provisional response
13				←					INVITE	IBCF_B forwards INVITE to IBCF_A

Step 14	U s e r A	U E A	N	I			1		Message	
14	e r		141	в	в	M	U E	U s		
14	-		S	С	С	S	В	e		
14			Α	F	F B	В		r B		
					\rightarrow				100 Trying	IBCF_A responds with a 100 Trying provisional response
15			←						INVITE	IBCF_A forwards INVITE to IMS_A
16				\rightarrow					100 Trying	IMS_A responds with a 100 Trying provisional response
17							→		INVITE	IMS_A forwards INVITE to UE_B
18			←						100 Trying	UE_B responds with a 100 Trying provisional response
19								→		User B is requested to accept to share video
20			←	_	-	-	-		180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
21				\rightarrow					180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
22					\rightarrow				180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
23						→			180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
24					(180 Ringing	IMS_B forwards the 180 Ringing response to IBCF_B
25				¢ –					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
26			(180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
27		(180 Ringing	IMS_A forwards 180 Ringing response to UE_A
28							←	-		User B accepts to share video
29			←	_			-		200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
30				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
31					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
32						→			200 OK	IBCF_B forwards 200 OK response to IMS_B
33					←	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
34				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
35			←	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
36		←								IMS_A forwards 200 OK response to UE_A
37	←	_								User A is informed that request has been answered
38			\rightarrow						ACK	UE_A acknowledges the receipt of 200 OK for INVITE
39				\rightarrow					ACK	IMS_A forwards ACK to IBCF_A
40				\vdash	\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
41						→			ACK	IBCF_B forwards ACK to IMS_B
42					(ACK	IMS_B forwards ACK to IBCF_B
43				←					ACK	IBCF_B forwards ACK to IBCF_A

Step				Dire	ection				Message	Comment
	U s	U E	I M	I B	I B	I M	U E	U s		
	e r	Α	S A	C F	C F	S B	в	e r		
44	A		∟ ⊢	A 	B	 		в	ACK	IBCF_A forwards ACK to IMS_A
45							→		ACK	IMS_A forwards ACK to UE_B
46			_			_		*		Video sharing starts
47A										User A ends video sharing
										-
48A			\rightarrow						BYE	UE_A releases the call with BYE
49A				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
50A					\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
51A						→			BYE	IBCF_B forwards BYE to IMS_B
52A					\leftarrow				BYE	IMS_B forwards BYE to IBCF_B
53A				←					BYE	IBCF_B forwards BYE to IBCF_A
54A			←						BYE	IBCF_A forwards BYE to IMS_A
55A							\rightarrow		BYE	IMS_A forwards BYE to UE_B
56A								*		User B is informed that video sharing has ended
57A	1		←	_		_	-		200 OK	UE_B sends 200 OK for BYE
58A				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
59A					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60A						→			200 OK	IBCF_B forwards 200 OK response to IMS_B
61A					←				200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63A			←						200 OK	IBCF_A forwards 200 OK response to IMS_A
64A		←							200 OK	IMS_A forwards the 200 OK response to UE_A
65A										Video sharing terminates
66A			←	-	-		-		OPTIONS	UE_B sends OPTIONS to IMS_A to verify availability of video sharing capability of the UE_A
67A				\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68A				-	\rightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A						→			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70A					←	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71A				←					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72A			←	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73A		<u>←</u>							OPTIONS	IMS_A forwards OPTIONS to UE_A
			I		I	ļ	I	l		

Step				Dire	ectio	n			Message	Comment
	U s	U E	I M	I B	I B	M	UE	U s		
	e r	Α	S A	C F	C F	S B	В	e r		
74A	A		→	A 	B			В	200 OK	UE_A responds 200 OK to IMS_A with updated
75A			_	\rightarrow					200 OK	capabilities IMS_A forwards 200 OK to IBCF_A
76A					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77A									200 OK	IBCF_B forwards 200 OK to IMS_B
78A					ŧ				200 OK	IMS_B forwards 200 OK to IBCF_B
79A				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
80A			←						200 OK	IBCF_A forwards 200 OK to IMS_A
81A							→		200 OK	IMS_A forwards 200 OK to UE_B
82A										User A terminates voice call
47B										User B ends video sharing
48B			←						BYE	UE_B releases the call with BYE
49B				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
50B					\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
51B									BYE	IBCF_B forwards BYE to IMS_B
52B					ť				BYE	IMS_B forwards BYE to IBCF_B
53B				←					BYE	IBCF_B forwards BYE to IBCF_A
54B			←						BYE	IBCF_A forwards BYE to IMS_A
55B		(BYE	IMS_A forwards BYE to UE_A
56B										User A is informed that video sharing has ended
57B	Ì		_						200 OK	UE_A sends 200 OK for BYE
57B			1						200 OK	IMS_A forwards 200 OK response to IBCF_A
									200 OK	IBCF_A forwards 200 OK response to IBCF_B
59B									200 OK	IBCF_B forwards 200 OK response to IMS_B
60B					ļ				200 OK 200 OK	·
61B										IMS_B forwards 200 OK response to IBCF_B
62B									200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			É						200 OK	IBCF_A forwards 200 OK response to IMS_A
64B									200 OK	IMS_A forwards the 200 OK response to UE_B
65B	× ×							\rightarrow	ODTIONS	Video sharing terminates
66B		\vdash	\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of video sharing capability of the
67B				\rightarrow					OPTIONS	UE_B IMS_A forwards OPTIONS to IBCF_A
		1	I	I	l	I	I	I		

Step				Dire	ction				Message	Comment
	U s e r	U E A	I M S A	I B C F	I B C F	I M S B	U E B	U s e r		
68B	A				B			В	OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
000										
69B						\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70B					←	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71B				←					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72B			←	_					OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B							\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
74B			←						200 OK	UE_B responds with 200 OK to IMS_A with updated capabilities
75B				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
76B					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
77B						\rightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
78B					←				200 OK	IMS_B forwards 200 OK to IBCF_B
79B				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
80B			<i>←</i>						200 OK	IBCF_A forwards 200 OK to IMS_A
81B		←							200 OK	IMS_A forwards 200 OK to UE_A
82B	←							\rightarrow		User B terminates voice call

4.5.4.3 Pictures sharing

4.5.4.3.1 Pictures sharing- interworking

	Interoperability Te	est Description								
Identifier:	TD_IMS_SHARE_0005									
Summary:	IMS network supports Picture sharing service and messages exchange between two users in their networks can be performed. User A starts video sharing with User B during a voice call									
0										
Configuration:	CF_INT_AS									
SUT	IMS_A and IMS_B									
References	Test Purpose	Specification Reference								
	TP_IMS_5115_02	TS 124 229 [1], clause 5.4.3.3 ¶91								
		(item 2 in 4 th numbered list)								
	TP IMS 5115 04	TS 124 229 [1], clause 5.4.3.3 ¶92								
		(item 2 in 4 th numbered list)								
Use Case ref.:	UC_RCS_8_I									
Pre-test	 HSS of IMS_A and of IMS B is 	configured according to table 1								
conditions:	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 									
	 UE_A is registered in IMS_A o 	ptionally using userPRES according to table 1								
	 UE_B is registered in IMS_B optionally using userPRES according to table 1 									
		to receive notifications with watcher information								
	UE_A is authorized to see pres									
	IMS_A is configured to contact									

		Interoperability Test Description
	• IMS	B is configured to contact AS_B
		B is optionally configured for reactive authorization
		A is within the trust domain of IMS_B
		A and UE_B have already performed capability discovery process
		A not configured for topology hiding
	• IIVI3_	
Test Sequence:	Step	
rest bequence.	1A	User A establishes a voice call to user B
	1B	User B establishes a voice call to user A
	2	User A requests to share picture with user B
	3	User B is requested to accept to share picture
	4	User B accepts to share picture
	4 5	User A is informed that request has been answered
	6 7	Picture sharing starts
		Picture transfer completed (size checked)
	8	User B is informed that picture transfer has finished
	9	User A is informed that picture transfer has finished
	10A	Voice call termination initiated by user A
	10B	Voice call termination initiated by user B
Conformance	Cheek	
Conformance Criteria:	Check	
Criteria.	1	
	1	TP_IMS_5115_02 in CFW step 72 (2xx): ensure that {
		when (LIE B agnds a 2xx, reapponents to LIE A)
		when { UE_B sends a 2xx_response to UE_A }
		then { IMS_A receives the 2xx_response from IMS_B
		then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header
		then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter
		then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and
		then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and containing a term-ioi_parameter
		then { IMS_A receives the 2xx_response from IMS_B containing a P-Charging-Vector_header containing an orig-ioi_parameter indicating operator_identifier of IMS_A and
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>
	2	<pre>then { IMS_A receives the 2xx_response from IMS_B</pre>

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
1A	←		-					→		User A establishes a voice call to user B
1B	₩				_			→		User B establishes a voice call to user A
2										User A requests to share picture with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share picture with user B
4		←							100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←	—					100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B

Step				Dire	ection				Message	Comment
	U	U E	I	l	I	I M	UE	U	Ŭ	
	s e	E A	M S	B C	B C	S	B	s e		
	r A		Α	F	FB	В		r B		
8				K					100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11							→		INVITE	IMS_B forwards INVITE to UE_B
12						←	-		100 Trying	UE_B responds with a 100 Trying provisional response
13							-	→		User B is requested to accept to share picture
14						←	-		180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
15					<i>(</i>	_			180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
16				Ł					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17			←						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18		←							180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19							←			User B accepts to share picture
20						←	_		200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
21					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
22				÷					200 OK	IBCF_B forwards 200 OK response to IBCF_A
23			←						200 OK	IBCF_A forwards 200 OK response to IMS_A
24		←							200 OK	IMS_A forwards 200 OK response to UE_A
25		-								User A is informed that request has been answered
26			\rightarrow						ACK	UE_A acknowledges the receipt of 200 OK for INVITE
27				\rightarrow					ACK	IMS_A forwards ACK to IBCF_A
28					\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
29						→			ACK	IBCF_B forwards ACK to IMS_B
30							→		ACK	IMS_B forwards ACK to UE_B
31								→		Picture sharing starts (see clause 5.3.3Image data via MSRP)
32										Picture transfer completed (size checked)
33			\rightarrow						BYE	UE_A releases the call with BYE
34				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
35					\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
36						\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
37							→		BYE	IMS_B forwards BYE to UE_B
	•	•	•	•	•	•				

Step				Dire	ction				Message	Comment
	U s r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
38								\rightarrow		User B is informed that picture transfer has finished
39						←			200 OK	UE_B sends 200 OK for BYE
40					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
41				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
42			←						200 OK	IBCF_A forwards 200 OK response to IMS_A
43		←							200 OK	IMS_A forwards the 200 OK response to UE_A
44										User A is informed that picture transfer has finished
45A	-							→		Voice call termination initiated by user A
45B			-					→		Voice call termination initiated by user B

4.5.4.3.2 Pictures sharing- roaming (optional)

	Interoperability Test I	Description
Identifier:	TD_IMS_SHARE_0006	•
Summary:	IMS network supports Picture sharing s	service and messages exchange between two d one user roaming can be performed. User A a voice call
Configuration:	CF_ROAM_AS (OPTIONAL)	
SUT	IMS_A and IMS_B	
References	Test Purpose	Specification Reference
	TP_IMS_5107_04	TS 124 229 [1], clause 5.4.3.2 ¶119 (item 1 in 8 th numbered list)
Use Case ref.:	UC_RCS_8_R	
Pre-test conditions:	 per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optio UE_B is registered in IMS_B via IN table 1 UE_A is optionally configured to registered to see presend IMS_A is configured to contact AS IMS_B is configured to contact AS AS_B is optionally configured for registered to make the trust domain optimized to the trust d	established to their respective IMS networks as nally using userPRES according to table 1 MS_A optionally using userPRES according to eccive notifications with watcher information be information of UE_B _A _B eactive authorization f IMS_B formed capability discovery process
Test Sequence:	Step1AUser A sets up a voice call t1BUser B sets up a voice call t2User A requests to share pic3User B is requested to acce4User B accepts to share pic5User A is informed that requ6Picture sharing starts7Picture transfer completed (o user A cture with user B pt to share picture ture lest has been answered

		Interoperability Test Description
	8	User B is informed that picture transfer has finished
	9	User A is informed that picture transfer has finished
	10A	User A terminates voice call
	10B	User B terminates voice call
Conformance	Check	
Criteria:		
	1	TP_IMS_5107_04 in CFW in step 68 (REFER):
		ensure that {
		when { IUT receives a REFER from UE_B addressed_to UE_A }
		then { IUT sends the REFER to IMS_A
		not containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_B }
		}

Step		Directi	on		Message	Comment
	UUI	I	1 1	UU	-	
	s E M		B M	E s		
	e A S		C S	Ве		
	r A A		F B B	r B		
1A		⊥î⊥				User A sets up a voice call to user B
1B		_				User B sets up a voice call to user A
2						User A requests to share picture with user B
3					INVITE	UE_A sends INVITE to share picture with user B
4	<				100 Trying	IMS_A responds with a 100 Trying provisional response
5		\rightarrow			INVITE	IMS_A forwards INVITE to IBCF_A
6					100 Trying	IBCF_A responds with a 100 Trying provisional
					list injing	response
7		\longrightarrow			INVITE	IBCF_A forwards INVITE to IBCF_B
8		<u> </u>			100 Trying	IBCF_B responds with a 100 Trying provisional response
9			\longrightarrow		INVITE	IBCF_B forwards INVITE to IMS_B
10			←		100 Trying	IMS_B responds with a 100 Trying provisional response
11			<u> </u>		INVITE	IMS_B forwards INVITE to IBCF_B
12					100 Trying	IBCF_B responds with a 100 Trying provisional
						response
13		←			INVITE	IBCF_B forwards INVITE to IBCF_A
14		\longrightarrow			100 Trying	IBCF_A responds with a 100 Trying provisional
45					INVITE	
15 16						IBCF_A forwards INVITE to IMS_A
		\rightarrow			100 Trying	IMS_A responds with a 100 Trying provisional response
17		_		>	INVITE	IMS_A forwards INVITE to UE_B
18				- 1	100 Trying	UE_B responds with a 100 Trying provisional
19						response User B is requested to accept to share picture
20					180 Ringing	UE_B responds to initial INVITE with 180
20	←			1		Ringing to indicate that it has started alerting
21		\rightarrow			180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A
22		\rightarrow			180 Ringing	IBCF_A forwards 180 Ringing response to IBCF_B
23			$ \longrightarrow $		180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
24			←		180 Ringing	IMS_B forwards the 180 Ringing response to IBCF_B
25		←			180 Ringing	IBCF_B forwards 180 Ringing response to IBCF A
26		—			180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A

Step				Dire	ection				Message	Comment
otop	U	U	1				U	U	meeeuge	Common
	S	Е	Μ	в	в	М	Е	S		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
27	A			A	B			В	180 Ringing	IMS_A forwards 180 Ringing response to UE_A
28										User B accepts to share picture
20								_	200 OK	UE_B responds INVITE with 200 OK to indicate
29			←	- -					200 01	that the request has been accepted
30				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
31					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
32						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
33					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
34				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
35			←	_ [200 OK	IBCF_A forwards 200 OK response to IMS_A
36		←								IMS_A forwards 200 OK response to UE_A
										User A is informed that request has been
37										answered
38			→						ACK	UE_A acknowledges the receipt of 200 OK for INVITE
39				\rightarrow					ACK	IMS_A forwards ACK to IBCF_A
40					\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
41					-	\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
42					←				ACK	IMS_B forwards ACK to IBCF_B
43				←	—				ACK	IBCF_B forwards ACK to IBCF_A
44			←	-					ACK	IBCF_A forwards ACK to IMS_A
45					— -		\rightarrow		ACK	IMS_A forwards ACK to UE_B
46		_	_				_	→		Picture sharing starts (see clause 5.3.3Image data via MSRP)
47										Picture transfer completed (size checked)
48			\rightarrow						BYE	UE_A releases the call with BYE
49				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
50				_	\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
51						\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
52					←				BYE	IMS_B forwards BYE to IBCF_B
53				←	_				BYE	IBCF_B forwards BYE to IBCF_A
54			\leftarrow	-					BYE	IBCF_A forwards BYE to IMS_A
55							\rightarrow		BYE	IMS_A forwards BYE to UE_B
56								→		User B is informed that picture transfer has
										finished
57			(_ -	— -				200 OK	UE_B sends 200 OK for BYE
58				→					200 OK	IMS_A forwards 200 OK response to IBCF_A
59					→				200 OK	IBCF_A forwards 200 OK response to IBCF_B
60						7			200 OK	IBCF_B forwards 200 OK response to IMS_B
61					K				200 OK	IMS_B forwards the 200 OK response to IBCF_B
62			,	É	<u> </u>				200 OK 200 OK	IBCF_B forwards 200 OK response to IBCF_A
63 64			(200 OK 200 OK	IBCF_A forwards 200 OK response to IMS_A
									200 UK	IMS_A forwards the 200 OK response to UE_A
65	←	-								User A is informed that picture transfer has finished
66A	←			_ _				->		User A terminates voice call
66B				_ _				_)		User B terminates voice call
	,	_						1		

4.5.4.4 Pictures sharing rejection

4.5.4.4.1 Pictures sharing rejection - interworking

Interoperability Tes ARE_0007	
supports Picture sharing	g service and messages exchange between two med. User A starts video sharing with User B s the invitation
MS B	
Se	Specification Reference
10_01	TS 124 229 [1], clause 5.4.3.3 ¶79 (after 6 th dashed list)
_	
nd UE_B have IP bearer 186 011-2 [9], clause 4.2 registered in IMS_A opt registered in IMS_B opt optionally configured to authorized to see prese s configured to contact A s configured to contact A optionally configured fo s within the trust domain	tionally using userPRES according to table 1 tionally using userPRES according to table 1 receive notifications with watcher information ence information of UE_B AS_A AS_B r reactive authorization of IMS_B performed capability discovery process
ser A establishes a voice ser B establishes a voice ser A requests to share ser B is requested to acc ser B rejects to share pie ser A is informed that re oice call termination initi- oice call termination initi-	e call to user A picture with user B cept to share picture cture quest has been rejected ated by user A
nsure that { when { IMS_A receives a	a 200_response from AS_A addressed_to UE_B }
e	FP_IMS_5110_01 in CFW ensure that { when { IMS_A receives a then { IMS_A sends the

Step				Dire	ction				Message	Comment
	U	U	Ι	I	I	Ι	U	U		
	S	Е	м	В	В	М	E	S		
	е	Α	S	С	С	S	В	е		
	r		Α	F	F	В		r		
	Α			Α	В			В		
1A	\mapsto				_			→		User A establishes a voice call to user B
1B	⊢ ←	_	_			_	-	→		User B establishes a voice call to user A
2		\rightarrow								User A requests to share picture with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share picture with user B
4		/							100 Trying	IMS_A responds with a 100 Trying provisional
										response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←	-					100 Trying	IBCF_A responds with a 100 Trying provisional response

Step				Dire	ction				Message	Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
7				· -	\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
8				←	_				100 Trying	IBCF_B responds with a 100 Trying provisional response
9	11					\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11	11						\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
12						←			100 Trying	UE_B responds with a 100 Trying provisional response
13]							\rightarrow		User B is requested to accept to share picture
14						←			180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
15					\leftarrow				180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
16				\leftarrow	-				180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17			←	_					180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18		←							180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19							←			User B rejects to share picture
20						←			603 Decline	UE_B responds INVITE with 603 Decline to indicate that the request has been rejected
21					←				603 Decline	IMS_B forwards 603 Decline response to IBCF_B
22				←	_				603 Decline	IBCF_B forwards 603 Decline response to IBCF_A
23]		←	_					603 Decline	IBCF_A forwards 603 Decline response to IMS_A
24	1	←							603 Decline	IMS_A forwards 603 Decline response to UE_A
25										User A is informed that request has been rejected
26									ACK	UE_A acknowledges the receipt of 603 Decline response for INVITE
27	1			\rightarrow					ACK	IMS_A forwards ACK to IBCF_A
00	1				.					IDCE A forwards ACK to IDCE D

|--|

28

29 30

31A 31B

	Interoperability Tes	st Description						
Identifier:	TD_IMS_SHARE_0008							
Summary:	IMS network supports Picture sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call, but User B rejects the invitation							
O a m fil muma til a m a								
Configuration:	CF_ROAM_AS (OPTIONAL)							
SUT	IMS_A and IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11						
		(items 5 and 8 in 1 st numbered list)						
Use Case ref.:	UC_RCS_8_R							
Pre-test	HSS of IMS_A and of IMS B is	configured according to table 1						

ACK ACK

ACK

IBCF_A forwards ACK to IBCF_B IBCF_B forwards ACK to IMS_B

Voice call termination initiated by user A

Voice call termination initiated by user B

IMS_B forwards ACK to UE_B

	Interoperability Test Description
conditions:	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information UE_A is authorized to see presence information of UE_B IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive authorization IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process
	IMS_A not configured for topology hiding
Test Sequence:	Step 1A User A sets up a voice call to user B 1B User B sets up a voice call to user A 2 User A requests to share picture with user B 3 User B is requested to accept to share picture 4 User B rejects to share picture 5 User A is informed that request has been rejected 6A User A terminates voice call 6B User B terminates voice call
Conformance Criteria:	Check 1 TP_IMS_5097_09 in CFW step 105 (INVITE) ensure that { when { IUT receives an INVITE from IMS_A from UE_B } then { IUT receives an INVITE to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header including an orig-ioi_parameter indicating the operator_identifier of IMS_A and not including a term-ioi_parameter and including access-network-charging-info }

Step				Direc	tion				Message	Comment
	U s e r	U E A	I M S A	I B C F	I B C F	I M S B	U E B	U s e r		
1A	A			A	<u>В</u>			<u> </u>		User A sets up a voice call to user B
1B	←			— I—				→		User B sets up a voice call to user A
2		→								User A requests to share picture with user B
3			\rightarrow						INVITE	UE_A sends INVITE to share picture with user B
4		←							100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow					INVITE	IMS_A forwards INVITE to IBCF_A
6			←	-					100 Trying	IBCF_A responds with a 100 Trying provisional response
7					\rightarrow				INVITE	IBCF_A forwards INVITE to IBCF_B
8				←	_				100 Trying	IBCF_B responds with a 100 Trying provisional response
9						\rightarrow			INVITE	IBCF_B forwards INVITE to IMS_B
10					←				100 Trying	IMS_B responds with a 100 Trying provisional response
11					₭				INVITE	IMS_B forwards INVITE to IBCF_B

Step				r	Direction	า				Message	Comment
otop	U	U	I		I	I	Ι	U	U	meeeuge	
	S	E	M			B	M	E	S		
	e r	Α	S			C F	S B	В	e r		
	Ă					B	5		B		
12							•			100 Trying	IBCF_B responds with a 100 Trying
10					,					INVITE	provisional response IBCF_B forwards INVITE to IBCF_A
13 14					<u> </u>					100 Trying	IBCF_A responds with a 100 Trying
17					\longrightarrow					100 Hying	provisional response
15			←							INVITE	IBCF_A forwards INVITE to IMS_A
16				\longrightarrow						100 Trying	IMS_A responds with a 100 Trying
17								→		INVITE	provisional response IMS_A forwards INVITE to UE_B
18										100 Trying	UE_B responds with a 100 Trying
										, 0	provisional response
19									\rightarrow		User B is requested to accept to share picture
20										180 Ringing	UE_B responds to initial INVITE with
_			←							5 5 5	180 Ringing to indicate that it has
21											started alerting IMS_A forwards 180 Ringing response
21				\rightarrow						180 Ringing	to IBCF_A
22										180 Ringing	IBCF_A forwards 180 Ringing response
											to IBCF_B
23							>			180 Ringing	IBCF_B forwards 180 Ringing response to IMS_B
24						(180 Ringing	IMS_B forwards the 180 Ringing
05										400 D' '	response to IBCF_B
25					←──					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
26										180 Ringing	IBCF_A forwards 180 Ringing response
											to IMS_A
27		←								180 Ringing	IMS_A forwards 180 Ringing response to UE_A
28								K	_		User B rejects to share picture
29										603 Decline	UE_B responds INVITE with 603
			←								Decline to indicate that the request has
30										603 Decline	been rejected IMS_A forwards 603 Decline response
00				\rightarrow						ooo Doomio	to IBCF_A
31					\longrightarrow					603 Decline	IBCF_A forwards 603 Decline response
										603 Decline	to IBCF_B IBCF_B forwards 603 Decline response
32							>			000 Decimic	to IMS_B
33						<u> </u>				603 Decline	IMS_B forwards 603 Decline response
										603 Decline	to IBCF_B IBCF_B forwards 603 Decline response
34					←						to IBCF_A
35			←							603 Decline	IBCF_A forwards 603 Decline response
										603 Decline	to IMS_A IMS_A forwards 603 Decline response
36		←								003 Decline	to UE_A
37											User A is informed that request has
0,	Ì										been rejected
38			\rightarrow							ACK	UE_A acknowledges the receipt of 603 Decline response for INVITE
39	j			\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
40					$ \longrightarrow$					ACK	IBCF_A forwards ACK to IBCF_B
41)			ACK	IBCF_B forwards ACK to IMS_B
42						(1			ACK ACK	IMS_B forwards ACK to IBCF_B
43 44			_							ACK	IBCF_B forwards ACK to IBCF_A IBCF_A forwards ACK to IMS_A
44								→		ACK	IMS_A forwards ACK to UE_B
10]	I	I		I	I	I	1	I		

Step				Direc	tion				Message	Comment
	U s e r A	U E A	I M S A	I B C F A	I B C F B	I M S B	U E B	U s e r B		
46A 46B								\rightarrow		User A terminates voice call User B terminates voice call

4.5.4.5 Stop sharing pictures

4.5.4.5.1 Stop sharing pictures - interworking

		Interoperability T	est Description						
Identifier:		SHARE_0009							
Summary:	IMS network supports Picture sharing service and messages exchange between two users in their networks can be performed. User A starts video sharing with User B during a voice call, but users decided to stop sharing picture								
Configuration:	CF_INT_								
SUT	IMS_A and IMS_B								
References	Test Pur		Specification Reference						
	TP_IMS_	_5110_01	TS 124 229 [1], clause 5.4.3.3 ¶79 (after 6 th dashed list)						
Use Case ref.:	UC_RCS	5_8_I							
Pre-test conditions:	 UE_, per 1 UE_, UE_, UE_, UE_, IMS_ IMS_ AS_1 IMS_ UE_, 	A and UE_B have IP bea IS 186 011-2 [9], clause A A is registered in IMS_A B is registered in IMS_B A is optionally configured A is authorized to see pre A is configured to contac B is configured to contac B is optionally configured A is within the trust dom	optionally using userPRES according to table 1 optionally using userPRES according to table 1 to receive notifications with watcher information esence information of UE_B et AS_A et AS_B for reactive authorization ain of IMS_B y performed capability discovery process						
Test Sequence:	Step 1A	User A establishes a vo	nice call to user B						
	1B	User B establishes a vo							
	2	User A requests to sha							
	3	User B is requested to							
	4	User B accepts to share							
	5		request has been answered						
	6	Picture sharing starts							
	7A	User A terminates pictu	ire sharing						
	8A	User B is informed that	picture sharing has terminated						
	9A		picture sharing has terminated						
	10A	Voice call termination in	nitiated by user A						
	7B	User B terminates pictu							
	8B		picture sharing has terminated						
	9B		picture sharing has terminated						
1	10B	Voice call termination in							

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_IMS_5110_01 in CFW step 85 (200 OK) ensure that { when { IMS_A receives a 200_response from AS_A addressed_to UE_B } then { IMS_A sends the 200_response to IMS_B } }

Step				Di	irectio	on					Message	Comment
	U	U	I			I	I	U	l	J		
	s	Е	Μ	В		в	Μ	Е	s	5		
	е	Α	S	C			S	В	e			
	r A		A	F		F B	В		E			
1A	\neg									<u> </u>		User A establishes a voice call to user B
1B	È								Ĵ			User B establishes a voice call to user A
2		_							1			User A requests to share picture with user B
3		Ĺ									INVITE	UE_A sends INVITE to share picture with user B
4			1								100 Trying	IMS_A responds with a 100 Trying provisional
		(loo liying	response
5				\rightarrow			Ì				INVITE	IMS_A forwards INVITE to IBCF_A
6			,								100 Trying	IBCF_A responds with a 100 Trying provisional
			,									response
7					\longrightarrow						INVITE	IBCF_A forwards INVITE to IBCF_B
8					←						100 Trying	IBCF_B responds with a 100 Trying provisional
9											INVITE	response IBCF_B forwards INVITE to IMS_B
-							7					
10						←	-				100 Trying	IMS_B responds with a 100 Trying provisional response
11								\rightarrow			INVITE	IMS_B forwards INVITE to UE_B
12											100 Trying	UE_B responds with a 100 Trying provisional
							<				, , , , , , , , , , , , , , , , , , , ,	response
13								_	\rightarrow			User B is requested to accept to share picture
14							<u> </u>				180 Ringing	UE_B responds to initial INVITE with 180
												Ringing to indicate that it has started alerting
15						←					180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
16					\leftarrow						180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
17			←	_							180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
18	Ì	←				Ì		Ì			180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
19								-	_			User B accepts to share picture
20											200 OK	UE B responds INVITE with 200 OK to indicate
												that the request has been accepted
21						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
22					\leftarrow						200 OK	IBCF_B forwards 200 OK response to IBCF_A
23			\leftarrow	—							200 OK	IBCF_A forwards 200 OK response to IMS_A
24		←									200 OK	IMS_A forwards 200 OK response to UE_A
25	←	-										User A is informed that request has been answered
26											ACK	UE_A acknowledges the receipt of 200 OK for
			1									INVITE
27				\rightarrow							ACK	IMS_A forwards ACK to IBCF_A
28					\longrightarrow						ACK	IBCF_A forwards ACK to IBCF_B
29)				ACK	IBCF_B forwards ACK to IMS_B
30								\rightarrow			ACK	IMS_B forwards ACK to UE_B
31				-					\rightarrow			Picture sharing starts
32A												User A terminates picture sharing
33A		-	\rightarrow								BYE	UE_A releases the call with BYE

Step			D	irectio	on			Message	Comment
	U	UI			I I	U	U		
	S	EN			3 M		S		
	e	A S			C S F B		e r		
	r A				3		B		
34A			\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
35A				\longrightarrow				BYE	IBCF_A forwards BYE to IBCF_B
36A					\longrightarrow			BYE	IBCF_B forwards BYE to IMS_B
37A					_	→		BYE	IMS_B forwards BYE to UE_B
38A							→		User B is informed that picture sharing has
004								200 OK	terminated UE_B sends 200 OK for BYE
39A 40A								200 OK 200 OK	IMS_B forwards 200 OK for BYE
40A 41A				,				200 OK 200 OK	IBCF_B forwards 200 OK response to IBCF_A
41A 42A			/	<u> </u>				200 OK 200 OK	IBCF_B forwards 200 OK response to IBCF_A
42A 43A		· · · · · ·						200 OK	IMS_A forwards the 200 OK response to UE_A
44A								200 010	User A is informed that picture sharing has
									terminated
45A								OPTIONS	UE_B sends OPTIONS to IMS_B to verify
					⊬	—			availability of picture sharing capability of the
46A								OPTIONS	UE_A IMS_B forwards OPTIONS to IBCF_B
46A 47A								OPTIONS	IBCF_B forwards OPTIONS to IBCF_B
47A 48A			<u> </u>	<u> </u>				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
49A		<u> </u>						OPTIONS	IMS_A forwards OPTIONS to UE_A
50A		Ì						200 OK	UE_A responds 200 OK to IMS_A with updated
00/1		\rightarrow						200 010	capabilities
51A		-	\longrightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
52A				\longrightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
53A					\longrightarrow			200 OK	IBCF_B forwards 200 OK to IMS_B
54A					-	\rightarrow		200 OK	IMS_B forwards 200 OK to UE_B
55A	←						→		Voice call termination initiated by user A
32B						←	_		User B terminates picture sharing
33B					⊢ +			BYE	UE_B releases the call with BYE
34B					←			BYE	IMS_B forwards BYE to IBCF_B
35B				\leftarrow				BYE	IBCF_B forwards BYE to IBCF_A
36B		, I	<u> </u>					BYE	IBCF_A forwards BYE to IMS_A
37B 38B		(BYE	IMS_A forwards BYE to UE_A User A is informed that picture sharing has
SOD	←	_							terminated
39B		\rightarrow						200 OK	UE_A sends 200 OK for BYE
40B		-	\longrightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
41B				\longrightarrow	i i	ľ		200 OK	IBCF_A forwards 200 OK response to IBCF_B
42B					\longrightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
43B						\rightarrow		200 OK	IMS_B forwards the 200 OK response to UE_B
44B							_		User B is informed that picture sharing has
455							1	ODTIONIC	
45B								OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of picture sharing capability of the
									UE_B
46B			\longrightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
47B	1			\longrightarrow				OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
48B					\rightarrow			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
49B						\longrightarrow		OPTIONS	IMS_B forwards OPTIONS to UE_B
50B								200 OK	UE_B responds with 200 OK to IMS_B with
545									updated capabilities
51B				,				200 OK	IMS_B forwards 200 OK to IBCF_B
52B			,	(T				200 OK	IBCF_B forwards 200 OK to IBCF_A
53B		ľ	<u> </u>					200 OK	IBCF_A forwards 200 OK to IMS_A
54B 55B		· · · · ·						200 OK	IMS_A forwards 200 OK to UE_A Voice call termination initiated by user B
000									Voice can termination mitiated by user B

4.5.4.5.2

Stop sharing pictures - roaming (optional)

		Interoperability Test Des	cription						
Identifier:	TD_IMS_	SHARE_0010							
Summary:	IMS network supports Picture sharing service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts video sharing with User B during a voice call, but users decided to stop sharing picture								
Configuration:		CF_ROAM_AS (OPTIONAL)							
SUT		IMS_A and IMS_B							
References	Test Pur		Specification Reference						
	TP_IMS_	_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11						
			(items 5 and 8 in 1 st numbered list)						
Use Case ref.:	UC_RCS	S_8_R							
Pre-test conditions:	 UE_per UE_table UE_ UE_ IMS_ AS_ IMS_ UE_ 	TS 186 011-2 [9], clause 4.2.1 A is registered in IMS_A optionall B is registered in IMS_B via IMS_ e 1	ablished to their respective IMS networks as y using userPRES according to table 1 A optionally using userPRES according to we notifications with watcher information of UE_B tive authorization S_B ned capability discovery process						
Test Sequence:	Step								
rear dequence.	1A	User A sets up a voice call to us	ser B						
	1B	User B sets up a voice call to us							
	2	User A requests to share picture							
	3	User B is requested to accept to							
	4	User B accepts to share picture							
	5	User A is informed that request							
	6	Picture sharing starts							
	7A	User A terminates picture shari	ng						
	8A	User B is informed that picture							
	9A	User A is informed that picture							
	10A	User A terminates voice call							
	7B	User B terminates picture shari	ng						
	8B	User A is informed that picture s							
	9B	User B is informed that picture	sharing has terminated						
	10B	User B terminates voice call							

	Interoperability Test Description							
Conformance Criteria:	Check							
	1	TP_IMS_5097_09 in CFW step 105 (INVITE) ensure that { when { IUT receives an INVITE from IMS_A from UE_B } then {IUT sends the INVITE to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header including an orig-ioi_parameter indicating the operator_identifier of IMS_A and not including a term-ioi_parameter and including access-network-charging-info } }						

Step				Di	rectio	on				Message	Comment
	U	U	I	1			Ι	U	U	j -	
	S	E	Μ	B		В	Μ	Е	S		
	e	Α	S A	C F		C F	S B	В	e		
	r A		~	A		3	Б		B		
1A	t t			- [_				→		User A sets up a voice call to user B
1B	←		_	-				+	→		User B sets up a voice call to user A
2		→									User A requests to share picture with user B
3			→							INVITE	UE_A sends INVITE to share picture with user B
4		←								100 Trying	IMS_A responds with a 100 Trying provisional response
5				\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
6			←	_						100 Trying	IBCF_A responds with a 100 Trying provisional response
7				-	\longrightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
8				÷	(100 Trying	IBCF_B responds with a 100 Trying provisional response
9							→			INVITE	IBCF_B forwards INVITE to IMS_B
10						(100 Trying	IMS_B responds with a 100 Trying provisional response
11						←	_			INVITE	IMS_B forwards INVITE to IBCF_B
12							→			100 Trying	IBCF_B responds with a 100 Trying provisional response
13				÷	(INVITE	IBCF_B forwards INVITE to IBCF_A
14				-	\longrightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
15			←	-						INVITE	IBCF_A forwards INVITE to IMS_A
16				\rightarrow						100 Trying	IMS_A responds with a 100 Trying provisional response
17				— -				\rightarrow		INVITE	IMS_A forwards INVITE to UE_B
18			←							100 Trying	UE_B responds with a 100 Trying provisional response
19								-	\rightarrow		User B is requested to accept to share picture
20			\leftarrow					_		180 Ringing	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
21				\rightarrow						180 Ringing	IMS_A forwards 180 Ringing response to IBCF_A

195

28 User B accepts to share picture	Step				Dire	ction				Message	Comment
r A F B B r 22 23 23 24 24 25 26 180 Ringing IBCF, B forwards 180 Ringing response to IBCF, B 25 25 26 190 Ringing IBCF, B forwards the 180 Ringing response to IBCF, B 27 190 Ringing IBCF, A forwards 180 Ringing response to IBCF, B 180 Ringing IBCF, A forwards 180 Ringing response to UE, A 28 29 200 CK USer B accepts to share picture 29 200 CK USer B accepts to share picture 29 200 CK IBCF, A forwards 200 CK response to IBCF_A 31 200 CK IBCF_A forwards 200 CK response to IBCF_A 32 200 CK IBCF_A forwards 200 CK response to IBCF_A 33 200 CK IBCF_A forwards 200 CK response to IBCF_A 34 200 CK IBCF_A forwards 200 CK response to IBCF_A 200 CK IBCF_A forwards 200 CK response to IBCF_A 200 CK IBCF_A forwards 200 CK response to IBCF_A 200 CK IBCF_A forwards 200 CK response to IBCF_A 200 CK IBCF_A forwards 200 CK response to IBCF_A 200 CK IBCF_A forwards ACK to IBCF_A 200 CK IBCF_A forwards ACK to		-		-	l B	I B	M		-		
A A B B 22 A B B 23 B CF_A forwards 180 Ringing response to lECF_B 23 B B B 24 B B B 25 B F B orwards 180 Ringing response to lECF_B 26 B B B B 27 B B B B 28 B B B B B 29 B B B B B 30 B B B B B 31 B B B B B 32 B B B B B 30 B B B B B B 31 B B B B B B B 32 B B B B B B B B B B B B B B B B B B		-	Α				-	В			
23 180 Ringing 180 Ringing <td< td=""><td></td><td>-</td><td></td><td></td><td>-</td><td></td><td></td><td></td><td></td><td></td><td></td></td<>		-			-						
24 IMS_B IMS_B Imschedung 25 180 Ringing IMS_B Imschedung Imschedung 26 180 Ringing Imschedung Imschedung Imschedung Imschedung 27 180 Ringing Imschedung						\rightarrow				00	IBCF_B
24 180 Ringing IMS_B forwards the 180 Ringing response to IBCF B 25 180 Ringing IBCF_B forwards 180 Ringing response to IBCF A 27 180 Ringing IBCF_A forwards 180 Ringing response to UE A 28 User B accepts to share picture 29 200 OK UE B responds INVITE with 200 OK to indicate that the request has been accepted 30 31 200 OK IBCF_A forwards 200 OK response to IBCF_B 32 200 OK IBCF_B Iorwards 200 OK response to IBCF_B 33 200 OK IBCF_B Iorwards 200 OK response to IBCF_B 34 200 OK IBCF_A forwards 200 OK response to IBCF_A 36 200 OK IBCF_B Iorwards 200 OK response to IBCF_A 37 200 OK IBCF_A forwards 200 OK response to IBCF_A 38 200 OK IBCF_A forwards ACK to IBCF_B 38 ACK IBCF_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_A 41 ACK IBCF_A forwards ACK to IBCF_A 42 ACK IBCF_A forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 42 ACK IBCF_B forwards ACK to IBCF_A	23						→			180 Ringing	
25 26 26 27 27 28 28 29 30 30 31 30 32 200 OK 33 200 OK 34 200 OK 35 200 OK 36 200 OK 37 200 OK 38 200 OK 39 200 OK 34 200 OK 35 200 OK 36 200 OK 37 200 OK 38 200 OK 39 200 OK 40 40 41 41 42 43 44 44 44 44 44 44 45 46 46 47A 47A 48A 49A 49A 51A 30 51A 30 31 30 32 30 34 36 35 36	24					€				180 Ringing	IMS_B forwards the 180 Ringing response to
26 27 180 Ringing IBCF_A forwards 180 Ringing response to IBC_A 28 User B accepts to share picture 200 OK User B accepts to share picture 29 200 OK US_A forwards 200 OK response to IBCF_A 30 200 OK IBCF_B forwards 200 OK response to IBCF_B 31 200 OK IBCF_B forwards 200 OK response to IBCF_B 34 200 OK IBCF_B forwards 200 OK response to IBCF_B 34 200 OK IBCF_B forwards 200 OK response to IBCF_A 36 200 OK IBCF_B forwards 200 OK response to IBCF_A 200 OK IBCF_B forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_B forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards ACK to IBCF_A 36 ACK IMS_A forwards ACK to IBCF_A 38 ACK IBCF_B forwards ACK to IBCF_A 40 ACK IBCF_B forwards ACK to IBCF_A 41 ACK IBCF_B forwa	25				←	_				180 Ringing	IBCF_B forwards 180 Ringing response to
27 180 Ringing IMS_A forwards 180 Ringing response to UE_A 28 User B accepts to share picture 29 20 User B accepts to share picture 30 31 200 CK UE_B responds INVITE with 200 OK to indicate that the request has been accepted to the cosponse to IBCF_A 31 32 200 OK IBCF_A forwards 200 OK response to IBCF_B 32 33 200 OK IBCF_B forwards 200 OK response to IBCF_B 34 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 200 OK IBCF_C forwards 200 OK response to IBCF_A 30 ACK IBCF_C forwards ACK to IBCF_A 40 ACK IBCF_C forwards ACK to IBCF_B 41 ACK IBCF_C forwards ACK to IBCF_A 42 ACK IBCF_C forwards ACK to IBCF_A 44 ACK <	26			←	-					180 Ringing	IBCF_A forwards 180 Ringing response to
29 20 0K UE_B responds INVITE with 200 OK to indicate that the request has been accepted 30 31 31 200 OK IMS_A forwards 200 OK response to IBCF_A 31 32 33 200 OK IBCF_A forwards 200 OK response to IBCF_B 32 33 200 OK IBCF_E B forwards 200 OK response to IBCF_B 34 40 40 IBCF_A forwards 200 OK response to IBCF_A 39 40 41 42 IBCF_A forwards 200 OK response to IBCF_B 40 41 42 ACK IBCF_A forwards 200 OK response to IBCF_B 42 43 ACK IBCF_A forwards 200 OK response to IBCF_B 44 ACK IBCF_A forwards 200 OK response to IBCF_B 44 ACK IBCF_A forwards 200 OK response to IBCF_B 42 ACK IBCF_A forwards ACK to IBCF_A 44 ACK IBCF_B forwards ACK to IBCF_B 44 ACK IBCF_B forwards ACK to IBCF_B 46 ACK IBCF_A forwards ACK to IBCF_A 47A ACK IBCF_A forwards ACK to IBCF_A 48A ACK IBCF_A forwards ACK to IMS_A 46 <td< td=""><td>27</td><td></td><td>←</td><td></td><td></td><td></td><td></td><td></td><td></td><td>180 Ringing</td><td>IMS_A forwards 180 Ringing response to UE_A</td></td<>	27		←							180 Ringing	IMS_A forwards 180 Ringing response to UE_A
30 31 30 10 100 </td <td>28</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>←</td> <td></td> <td></td> <td>User B accepts to share picture</td>	28							←			User B accepts to share picture
30 31 31 32 32 33 33 34 35 200 OK IBCF_A forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_B 200 OK IBCF_B forwards 200 OK response to IBCF_A 36 200 OK IBCF_B forwards 200 OK response to IBCF_A 36 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to UE_A 37	29			←		_		_		200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47A 48A 47A 48A 40 41 42 43 44 45 46 47A 48A 49A 50A 51A	30				\rightarrow					200 OK	
32 33 33 34 35 200 OK 36 IMS_B forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IBCF_A forwards 200 OK response to IMS_A 36 IMS_A forwards 200 OK response to UE_A 37 User A is informed that request has been answered 38 ACK 39 ACK 40 ACK 41 ACK 42 ACK 43 ACK 44 ACK 45 ACK 46 ACK 47A ACK 48A ACK 49A ACK 50A ACK </td <td>31</td> <td></td> <td></td> <td></td> <td></td> <td>\rightarrow</td> <td></td> <td></td> <td></td> <td>200 OK</td> <td>IBCF_A forwards 200 OK response to IBCF_B</td>	31					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
33 34 34 35 34 35 36 200 OK 37 IBCF_B forwards 200 OK response to IBCF_A 38 IMS_A forwards 200 OK response to UE_A 38 IMS_A forwards 200 OK response to UE_A 39 IMS_A forwards 200 OK response to UE_A 40 IMS_A forwards ACK to IBCF_B 41 IMS_A forwards ACK to IBCF_B 42 IMS_A forwards ACK to IBCF_B 43 IMS_B forwards ACK to IBCF_B 44 IMS_B forwards ACK to IBCF_B 45 ACK 46 IBCF_A forwards ACK to IBCF_A 47A IBCF_B forwards ACK to IBCF_A 48A IBCF_B forwards ACK to IBCF_A 48A IBCF_B forwards ACK to IBCF_A 50A IBCF_B forwards ACK to IBCF_A 50A IBCF_B forwards BCE to IBCF_A 50A IBCF_B forwards BYE to IBCF_B 51A IBCF_B forwards BYE to IBCF_B 51A IBCF_B forwards BYE to IBCF_B	32						\rightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
35 36 200 OK IBCF_A forwards 200 OK response to IMS_A 36 IMS_A forwards 200 OK response to UE_A 37 User A is informed that request has been answered 38 ACK USEAchowledges the receipt of 200 OK for INVITE 39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_B 43 ACK IBCF_A forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 45 ACK IBCF_A forwards ACK to IBCF_A 46 ACK IBCF_A forwards ACK to IBCF_A 47A ACK IBCF_A forwards ACK to IBCF_A 48A ACK IBCF_A forwards ACK to IBCF_A 48A ACK IBCF_A forwards ACK to IBCF_A 50A ACK IBCF_A forwards ACK to IBCF_A 51A ACK IBCF_A forwards BCK to IBCF_A BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE<	33					←				200 OK	IMS_B forwards 200 OK response to IBCF_B
36 IMS_A forwards 200 OK response to UE_A 37 User A is informed that request has been answered 38 ACK UE_A acknowledges the receipt of 200 OK for INVITE 39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_B forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A BYE User A terminates picture sharing BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE	34				←	_				200 OK	IBCF_B forwards 200 OK response to IBCF_A
37 User A is informed that request has been answered 38 ACK UE_A acknowledges the receipt of 200 OK for INVITE 39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_B 43 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 46 ACK IBCF_A forwards ACK to IBCF_A 47A ACK IBCF_A forwards ACK to UE_B 48A ACK IMS_A forwards BYE to IBCF_A 49A ACK IMS_A forwards BYE to IBCF_A 50A ACK IBCF_B forwards BYE to IBCF_B 51A ACK IBCF_B forwards BYE to IBCF_B	35			←	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
37 answered 38 ACK UE_A acknowledges the receipt of 200 OK for INVITE 39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_B 43 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 45 ACK IBCF_A forwards ACK to IBCF_A 46 ACK IBCF_A forwards ACK to IMS_A 46 ACK IBCF_A forwards ACK to UE_B 48A ACK IMS_A forwards ACK to UE_B 48A ACK IMS_A forwards BYE to IBCF_A 50A ACK IBCF_A forwards BYE to IBCF_B 51A ACK IBCF_B forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B	36		←								IMS_A forwards 200 OK response to UE_A
38 39 ACK UE_A acknowledges the receipt of 200 OK for INVITE 39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_B 43 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 45 ACK IBCF_A forwards ACK to IBCF_A 46 ACK IBCF_A forwards ACK to UE_B 46 ACK IMS_A forwards ACK to UE_B 48A ACK IMS_A forwards ACK to UE_B 9A ACK IMS_A forwards BYE to UE_A 50A ACK IMS_A forwards BYE to IBCF_A 51A ACK IMS_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_C B	37	↓	_							_	
39 ACK IMS_A forwards ACK to IBCF_A 40 ACK IBCF_A forwards ACK to IBCF_B 41 ACK IBCF_B forwards ACK to IBCF_B 42 ACK IBCF_B forwards ACK to IBCF_B 43 ACK IBCF_B forwards ACK to IBCF_A 44 ACK IBCF_A forwards ACK to IBCF_A 45 ACK IBCF_A forwards ACK to IBCF_A 46 ACK IBCF_A forwards ACK to IMS_A 47A ACK IMS_A forwards ACK to UE_B 48A ACK IMS_A forwards ACK to UE_B 9A ACK IMS_A forwards ACK to IBCF_A 50A ACK IMS_A forwards BYE to IBCF_B 51A ACK IBCF_A forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B	38		-	→						ACK	UE_A acknowledges the receipt of 200 OK for
41 42 43 44 45 46 47A 46 47A 48A 49A 50A 51A	39				\rightarrow					ACK	IMS_A forwards ACK to IBCF_A
41 42 43 44 44 44 45 46 47A 48A 49A 48A 50A 51A 51A 44	40					\rightarrow				ACK	IBCF_A forwards ACK to IBCF_B
42 43 44 44 45 ACK IBCF_B forwards ACK to IBCF_A 44 45 ACK IBCF_A forwards ACK to IMS_A 46 ACK IMS_A forwards ACK to UE_B 47A Picture sharing starts 48A ACK User A terminates picture sharing 48A ACK IMS_A forwards BYE to IBCF_A 50A S1A ACK IBCF_B forwards BYE to IBCF_B BYE IBCF_A forwards BYE to IBCF_B BYE BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IBCF_B	41						\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
44 44 44 45 ACK IBCF_A forwards ACK to IMS_A 45 46 ACK IMS_A forwards ACK to UE_B 46 Picture sharing starts User A terminates picture sharing 48A ACK USer A terminates picture sharing 48A ACK USer A terminates picture sharing 50A ACK IMS_A forwards BYE to IBCF_A 51A ACK IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B BYE IBCF_B forwards BYE to IMS_B	42					Ł				АСК	IMS_B forwards ACK to IBCF_B
44 45 ACK IMS_A forwards ACK to UE_B 46 ACK IMS_A forwards ACK to UE_B 46 User A terminates picture sharing 47A BYE UE_A releases the call with BYE 48A ACK IMS_A forwards BYE to IBCF_A 50A ACK IMS_A forwards BYE to IBCF_B 51A BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B	43				←	_				ACK	IBCF_B forwards ACK to IBCF_A
 43 46 47A 48A 49A 50A 51A A Picture sharing starts User A terminates picture sharing BYE UE_A releases the call with BYE BYE IMS_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B BYE IMS_ P forwards BYE to IMS_B 	44			←	_					ACK	IBCF_A forwards ACK to IMS_A
470 47A User A terminates picture sharing 47A 48A Herminates picture sharing 48A Herminates picture sharing BYE 49A Herminates picture sharing BYE 50A Herminates picture sharing BYE 50A Herminates picture sharing BYE 51A Herminates picture sharing BYE BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_B forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B	45				_			\rightarrow		ACK	IMS_A forwards ACK to UE_B
47A A 48A A 49A A 50A A 51A BYE BYE IBCF_A forwards BYE to IBCF_A BYE IBCF_A forwards BYE to IBCF_B BYE IBCF_B forwards BYE to IMS_B BYE IBCF_B forwards BYE to IMS_B	46				_ _	- -					Picture sharing starts
49A Image: Constraint of the second seco	47A	←		_	_						User A terminates picture sharing
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	48A		-	→						BYE	UE_A releases the call with BYE
51A BYE IBCF_B forwards BYE to IMS_B	49A				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
DVE IMC P forwarda PVE to IPCE P	50A					\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
52A BYE IMS_B forwards BYE to IBCF_B	51A						\rightarrow			BYE	IBCF_B forwards BYE to IMS_B
	52A					←				BYE	IMS_B forwards BYE to IBCF_B
53A BYE IBCF_B forwards BYE to IBCF_A	53A				←	_				BYE	IBCF_B forwards BYE to IBCF_A

Step				Di	rectio	n				Message	Comment
	U s	UE	I M	I B	E	3	I M	U E	U s		
	е	Ā	S	C F	C	>	S B	В	е		
	r A		Α	A	F		в		r B		
54A			←							BYE	IBCF_A forwards BYE to IMS_A
55A				_ -				→		BYE	IMS_A forwards BYE to UE_B
56A								_	→		User B is informed that picture sharing has terminated
57A			←	_ -			_	_		200 OK	UE_B sends 200 OK for BYE
58A				\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
59A				-	\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
60A							→			200 OK	IBCF_B forwards 200 OK response to IMS_B
61A						<i>(</i>	_			200 OK	IMS_B forwards the 200 OK response to IBCF_B
62A				÷						200 OK	IBCF_B forwards 200 OK response to IBCF_A
63A			←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
64A		←								200 OK	IMS_A forwards the 200 OK response to UE_A
65A											User A is informed that picture sharing has terminated
66A			←	_				_		OPTIONS	UE_B sends OPTIONS to IMS_A to verify availability of picture sharing capability of the UE_A
67A				\rightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68A				-	\rightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69A							→			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70A						<i>(</i>	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71A				÷	<u> </u>					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72A			←	_						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73A		←								OPTIONS	IMS_A forwards OPTIONS to UE_A
74A			→							200 OK	UE_A responds 200 OK to IMS_A with updated capabilities
75A				\rightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
76A				-	\longrightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
77A							→			200 OK	IBCF_B forwards 200 OK to IMS_B
78A						<i>(</i>				200 OK	IMS_B forwards 200 OK to IBCF_B
79A				ŧ						200 OK	IBCF_B forwards 200 OK to IBCF_A
80A			←	_						200 OK	IBCF_A forwards 200 OK to IMS_A
81A				_ -				→		200 OK	IMS_A forwards 200 OK to UE_B
82A											User A terminates voice call
47B											User B terminates picture sharing
48B			←				+	_		BYE	UE_B releases the call with BYE

Step				Di	recti	on				Message	Comment
	U s	U E	I M	I B		l B	I M	U E	U s	_	
	e r	Ā	SA	C F	;	C F	S B	В	e r		
	Å			A		B			В	DVE	
49B				\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
50B					\longrightarrow					BYE	IBCF_A forwards BYE to IBCF_B
51B							→			BYE	IBCF_B forwards BYE to IMS_B
52B						←	-			BYE	IMS_B forwards BYE to IBCF_B
53B					~~~					BYE	IBCF_B forwards BYE to IBCF_A
54B			\leftarrow	-						BYE	IBCF_A forwards BYE to IMS_A
55B		←								BYE	IMS_A forwards BYE to UE_A
56B	←										User A is informed that picture sharing has terminated
57B			\rightarrow							200 OK	UE_A sends 200 OK for BYE
58B				\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
59B					\longrightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
60B							→			200 OK	IBCF_B forwards 200 OK response to IMS_B
61B						←	_			200 OK	IMS_B forwards 200 OK response to IBCF_B
62B					<u> </u>					200 OK	IBCF_B forwards 200 OK response to IBCF_A
63B			←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
64B				_			_	→		200 OK	IMS_A forwards the 200 OK response to UE_B
65B											User B is informed that picture sharing has terminated
66B			\rightarrow							OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of picture sharing capability of the UE_B
67B				\rightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
68B					\longrightarrow					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
69B							→			OPTIONS	IBCF_B forwards OPTIONS to IMS_B
70B						←	_			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
71B					<u> </u>					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
72B			←	_						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
73B				_		<u> </u>		\rightarrow		OPTIONS	IMS_A forwards OPTIONS to UE_B
74B			\leftarrow	_		<u> </u>	_			200 OK	UE_B responds with 200 OK to IMS_A with updated capabilities
75B				\rightarrow						200 OK	IMS_A forwards 200 OK to IBCF_A
76B					\longrightarrow					200 OK	IBCF_A forwards 200 OK to IBCF_B
77B							→			200 OK	IBCF_B forwards 200 OK to IMS_B
78B						<u> </u>				200 OK	IMS_B forwards 200 OK to IBCF_B
79B					<u> </u>					200 OK	IBCF_B forwards 200 OK to IBCF_A
					•	1		ļ			

Step	Direction								Message	Comment
	N s e r A	UEA	I M S A	I B C F A	I B C F B	I M S B	U E B	U s r B		
80B			←	-					200 OK	IBCF_A forwards 200 OK to IMS_A
81B		←							200 OK	IMS_A forwards 200 OK to UE_A
82B	+							→		User B terminates voice call

4.5.5 File transfer service

4.5.5.1 Instant file transfer

4.5.5.1.1 Instant file transfer - interworking

	Interoperability	Test Description									
Identifier:	TD_IMS_FILE_0001										
Summary:		e transfer service and messages exchange between									
	two users in their home network can be performed. User A starts file transfer										
Configuration:	CF_INT_AS										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11									
		(1 st numbered list)									
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5									
		(item 4 in 1 st numbered list)									
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89									
		(4 th numbered list)									
Use Case ref.:	UC_RCS_9_I										
Pre-test		is configured according to table 1									
	 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information UE_A is authorized to see presence information of UE_B IMS_A is configured to contact AS_A IMS_B is configured to contact AS_B AS_B is optionally configured for reactive authorization IMS_A is within the trust domain of IMS_B UE_A and UE_B have already performed capability discovery process 										
	 IMS_A not configured for top 										
Test Sequence:	Step										
	1 User A initiates a file t										
		incoming file and accepts the transfer									
		t file transfer has been accepted by user B									
	4 File transfer starts										
		ile transfer completed (size checked)									
		at file transfer completed									
	7 User A is informed that file transfer completed										

		Interoperability Test Description
Conformence	Check	
Conformance Criteria:	Check	
Criteria:	1	
	1	TP_IMS_5097_01 in CFW step 10 (INVITE):
		ensure that {
		when { UE_A sends an initial INVITE to UE_B }
		then { IMS_B receives the initial INVITE
		not containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		containing a P-Charging-Vector_header
		(containing an icid-value_parameter and
		containing a orig-ioi_parameter indicating IMS_A and
		not containing an access-network-charging-info_parameter and
		not containing a term-ioi_parameter) and
		containing a Record-Route_header
		indicating the originating S-CSCF_SIP_URI }
		}
	2	TP_IMS_5108_03 in CFW step 14 (INVITE)
		ensure that {
		when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B}
		then {IMS_B sends the INVITE to AS_B
		containing a topmost Route_header
		indicating the SIP_URI of AS_B and
		containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_B and
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter }
		}
	3	TP_IMS_5115_08 in CFW step 35 (200 OK)
		ensure that {
		when { IMS_B receives 200_response from AS_B addressed to UE_A }
		then { IMS B sends the 200 response to IMS A
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		including a term-ioi_parameter
		indicating operator_identifier of IMS_B }
		}

Step					Direc	tion					Message	Comment
	UserA	U E A	A S/ M A	I M S A	I B C F A	– всғв	I M S B	A S/ I B	U E B	U s e r B		
1		→										User A initiates a file transfer to user B
2				→							INVITE	UE_A sends INVITE to IMS_A to establish a session with the SDP offer indicating all specific data for a MSRP connection set up
3		←									100 Trying	IMS_A responds with a 100 Trying provisional response
4			←								INVITE	IMS_A forwards INVITE to AS/IM_A
5				→							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			←	_							100 Trying	IMS_A responds with a 100 Trying provisional response
8					\rightarrow						INVITE	IMS_A forwards INVITE to IBCF_A
9				←	-						100 Trying	IBCF_A responds with a 100 Trying provisional response

U U U E Sr I B I A U U I I S C F F B M Sr I B F F F F F B M Sr I B F <th>Step</th> <th></th> <th></th> <th></th> <th></th> <th>Direc</th> <th>tion</th> <th></th> <th></th> <th></th> <th></th> <th>Message</th> <th>Comment</th>	Step					Direc	tion					Message	Comment
e A M A F F B		U			Ι	I	I	I			U	J	
r M A F B M F 10 I IBCE_A forwards INVITE to IBCE_B forwards INVITE to IBCE IBCE_B forwards INVITE to IBS B 12 I ImVITE IBCE_B forwards INVITE to IBS B 13 ImVITE IBCE_B forwards INVITE to IBS B 14 ImVITE IBCE_B forwards INVITE to IBS B 15 ImVITE IMVITE ImVITE 16 ImVITE ImVITE ImVITE to IMS B 17 ImVITE ImVITE ImVITE to IMS B 18 ImVITE ImVITE ImVITE to IMS B 19 ImVITE ImVITE ImVITE to IMS B 100 Trying provisional response ImVITE to IMS B 101 ImVITE ImVITE to IMS B ImVITE to IMS B 101 ImVITE ImVITE to IMS B ImVITE to IMS B 101 ImVITE to IMS B ImVITE to IMS B ImVITE to IMS B 101 ImVITE to IMS B ImVITE to IMS B ImVITE to IMS B 101 ImVITE to IMS B ImVITE to IMS B ImVITE to IMS B 200 ImVITE to IMS B ImVITE to IMS B <td></td> <td></td> <td></td> <td>_</td> <td></td> <td></td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td>				_					-				
A A B B INVITE IBCF: A rewards INVITE to IBCF: B 11 IBCF: B responds with a 100 Trying IBCF: B responds with a 100 Trying IBCF: B responds with a 100 Trying 12 IBCF: B responds with a 100 Trying IBCF: B responds with a 100 Trying IBCF: B responds with a 100 Trying 14 IBCF: B responds with a 100 Trying INVITE IBCF: B responds with a 100 Trying 16 INVITE IBCF: B responds with a 100 Trying INVITE IBCF: B responds with a 100 Trying 16 IOT Trying INVITE INVITE INVITE IBCF: B responds with a 100 Trying 17 INVITE INS, B responds with a 100 Trying INVITE INVITE INS, B responds with a 100 Trying 18 IOT Trying INVITE INS, B responds with a 100 Trying INVITE INS, B responds with a 100 Trying 20 INVITE INS, B responds INVITE with 200 OK response INS, B responds INVITE with 200 21 IOT Trying INS, B responds INVITE with 200 OK response to INK B INS, B responds INVITE with 200 22 ION Trying INS, B responds INVITE with 200 OK response to INK B INK Responds INVITE With 200		-	A	-					-	D	_		
11 10 Trying 100 Try							В	_					
12 13 14 15 16 17 18 19 10 17 18 19 20 21 20 21 20 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 34 34 35 36							\uparrow						
13 100 Trying MS. B responds with a 100 Trying 14 15 INVITE IMS. B responds with a 100 Trying 16 100 Trying ASIM. B responds with a 100 Trying 17 INVITE IMS. B responds with a 100 Trying 18 100 Trying ASIM. B responds with a 100 Trying 19 100 Trying INVITE to IMS. B 20 INVITE IMS. B responds with a 100 Trying 100 Trying INVITE to IMS. B INVITE to UE B 100 Trying INVITE to IMS. B INVITE to UE B 20 INVITE IMS. B responds with a 100 Trying 101 Trying INVITE to IMS. B Invite INVITE to UE B 20 IMS. B responds with a 100 Trying INVITE to IMS. B 21 INVITE INMS B formation Incoming file INVITE to IMS. B 22 INVITE INMS B formation Incoming file INVITE INMS. B 23 INVITE INMITE INTE INTE INTE INVITE INMS. B 24 INVITE INMS. B formatics 200 CK response INMS. B INVITE INMS. B 25 INVITE INMS. B formatics 200 CK response INMS. B INVITE INMS. B 26 INVITE INMS. B formatics 200 CK response INMS. B	11					←							provisional response
14 15 16 17 18 19 20 21 21 22 23 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 30 30 31 32 33 34 34 34 34 34 34 34 34 34 34 34 34 34 35 36 37 38 39 30 31 32 33								\rightarrow					
15 16 17 18 19 18 19 20 21 20 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 29 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 34 34 34 34 34 34 34 34 34 34	13						←					100 Trying	
16 Trying provisional response 17 Trying provisional response 18 10 19 INVITE 20 INVITE 21 INVITE 21 INVITE 22 INVITE 23 INVITE 23 INVITE 24 INVITE 25 INVITE 26 INVITE 27 INVITE 28 INVITE 29 INVITE 20 INVITE 21 INVITE 22 INVITE 23 INVITE 24 INVITE 25 INVITE 26 INVITE 27 INVITE 28 INVITE 29 INVITE 30 INVITE 31 INVITE 31 INVITE 32 INVITE 33 INVITE 34 INVITE 33 INVITE 34 INVITE									\rightarrow				
16 17 18 19 20 21 22 21 22 21 22 23 24 25 26 27 28 29 20 21 22 23 24 25 26 27 28 29 29 20 21 22 23 24 25 26 27 28 29 29 200 OK 18CF_B Torwards 200 OK response to IBS_A Torwards 200 OK response to IBS_A Torwards 200 OK response to VIS_A Torwards ACK to ISCF_A 200 OK for INVITE 30 40 31 41	15							←				100 Trying	
17 10 Trying IMS as responds with a 100 Trying provisional response provisional response provisional response in 100 Trying provisional response in 100 Trying provisional response in 200 and accepts the transfer 20 User P is informed of incoming file and accepts with SP to indicate that the session has been accepted in a file session has been accepted in a file session has been accepted in the session has been accepted in the session has been accepted by BSP to indicate that the session has been accepted by BSP to indicate that the session has been accepted by BSP to indicate that the session has been accepted by BSP to indicate that the session has been accepted by BSP to indicate that the session has been accepted by BSP to INS B forwards 200 OK response to INS B forwards 200 OK response to INS B forwards 200 OK response to ISC F as forwards 200 OK response to ISC F as a forwards 200 OK response to ISC F as a forwards 200 OK response to ISC F as a compose to INS A 200 OK IMS A forwards 200 OK response to ISC A 200 OK IMS A forwards ACK to ASIM. A returns, possibly modified, 200 OK for INVITE has been accepted by user B and CK IMS A forwards ACK to ASIM. A returns, possibly modified, ACK to IMS A A ACK IDEC F. B accepted by user B ACK IDSC A forwards ACK to ASIM. A returns, possibly modified, ACK to IMS A ACK to IMS B Invards ACK to ASIM. A ACK IDSC A forwards ACK to ASIM. A ACK IDSC F. B ACK IDSC A forwards ACK to ASIM. B Invards ACK to ASIM. B Invards ACK to ASIM. B Invards ACK to ASIM. B ACK IDSC A INVITE AND A INVITE AND A ACK ID INSC A INVITE AND A IN	16							←				INVITE	AS/IM_B returns, possibly modified,
18 19 20 UBE B pitnonally responds with a 100 Trying provisional response 0 user B is informed in nooming file and accepts B is informed in and accepts with 300 Trying provisional response 0.05 mit sponder with 300 Trying provisional mit sponder with 300 Trying provis spondere	17								→			100 Trying	IMS_B responds with a 100 Trying
20 100 Trying provisional response 21 100 Trying provisional response 22 200 CK 23 200 CK 23 200 CK 24 200 CK 25 200 CK 26 200 CK 27 200 CK 28 200 CK 29 200 CK 30 100 CK response to 1MS B 29 200 CK 31 200 CK 32 200 CK 33 200 CK 28 200 CK 29 200 CK 31 200 CK 32 200 CK 33 200 CK response to 1MS A 29 200 CK response to 1MS A 200 CK 100 CK response to 1MS A 200 CK response to 1MS A <	18									\rightarrow		INVITE	
20 User B is informed of incoming file and accepts the transfer ession has been accepted and inform A-side with specific data for a MSRP connection set up 21 200 OK UE, B responds INVITE with 200 OK response with SDP to indicate that the session has been accepted and inform A-side with specific data for a MSRP connection set up 22 200 OK MS, B forwards 200 OK response to IMS, B 23 200 OK MS, B forwards 200 OK response to IMS, B 24 200 OK MS, B forwards 200 OK response 25 200 OK IBCF, B forwards 200 OK response to IMS, B 200 OK IBCF, A forwards 200 OK response to IMS, A 200 OK is Convards 200 OK response to IMS, A 28 200 OK IBCF, A forwards 200 OK response to IMS, A 200 OK is MS, A forwards 200 OK response to IMS, A 29 200 OK IMS, A forwards 200 OK response to IMS, A 200 OK is MS, A forwards 200 OK response to INS, A 30 200 OK IMS, A forwards 200 OK response to INS, A 200 OK is MS, A forwards 200 OK response to INS, A 31 33 34 ACK ASIM, A returns, possibly modified, ACK to IMS, A forwards ACK to ASIM, A 33 34 ACK MS, A forwards ACK to ISCF, B 33 34 ACK MS, A forwards ACK to ISCF, B	19							(100 Trying	
21 and accepts the transfer 21 and accepts the transfer 21 Construction 22 Construction 23 Construction 24 Construction 25 Construction 26 Construction 27 Construction 28 Construction 29 Construction 20 Construction 20 Construction 20 Construction 20 Construction 20 Construction 21 Construction 22 Construction 23 Construction 24 Construction 25 Construction 26 Construction 27 Construction 28 Construction 29 Construction 30 Construction 31 Construction 32 Construction 33 Construction 34 Construction 35 Construction <											_		
22 22 23 24 24 20 OK 25 26 26 20 OK 27 20 OK 28 20 OK 29 20 OK 20 OK IBCF. B forwards 200 OK response to IBCF. B 200 OK IBCF. B forwards 200 OK response to IBCF. B 200 OK IBCF. B forwards 200 OK response to IBCF. B 200 OK IBCF. A forwards 200 OK response to IBCF. A 200 OK IBCF. A forwards 200 OK response to IMS. A 200 OK IBCF. A forwards 200 OK response to AS/IM_A 200 OK IBCF. A forwards 200 OK response to IMS. A 200 OK IBCF. A forwards 200 OK response to NS. A 200 OK IMS_A forwards 200 OK response to VK response to NS. A 200 OK IMS_A forwards 200 OK response to VK response to VK a 31 31 ACK 32 ACK UE_A acknowledges the receipt of 200 OK response to VK a 33 ACK IBCF_A forwards ACK to AS/IM_A 34 ACK IBCF_A forwards ACK to IBCF_B 36 ACK IBCF_A forwards ACK to ISCF_A 37 38 AC											→		and accepts the transfer
22 23 23 24 24 25 25 26 27 200 OK 28 200 OK 29 200 OK 30 200 OK 31 200 OK 32 23 34 35 36 36 37 38 39 40 41 41 42 42	21											200 OK	
22 and inform A-side with specific data for a MSRP connection set up 23 20 OK 24 20 OK 25 20 OK 26 200 OK 27 200 OK 28 200 OK 29 200 OK 28 200 OK 29 200 OK 30 BCF_A forwards 200 OK response to IBCF_A 31 200 OK 32 31 33 4 34 35 36 37 38 39 40 40 41 40								<u> </u>					
22 23 23 24 24 25 25 26 27 28 27 200 OK 28 200 OK 29 200 OK 30 30 31 31 32 33 34 4 35 36 36 37 38 40 41 41 42 42													and inform A-side with specific data
23 24 24 24 25 26 26 27 27 28 29 200 OK 28 200 OK 29 000 K 200 OK IBCF_B forwards 200 OK response to IMS_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to UE_A 30 000 OK 31 000 OK for INVITE 32 00 OK for INVITE 33 00 OK for INVITE 34 00 OK for INVITE 35 00 OK for INVITE 36 00 OK for INVITE 37 00 OK IMS_A returns, possibly modified, ACK to IMS_B 38 00 OK IMS_A returns, possibly modified, ACK to IMS_A 39 00 OK IMS_A returns, possibly modified, ACK to IMS_B 40 00 OK IMS_B forwards ACK to IMS_B 41 00 OK IMS_B 42 00 OK IMS_B	22								→			200 OK	IMS_B forwards 200 OK response
24 25 25 26 26 27 27 28 28 200 OK 29 200 OK 30 1BCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IBCF_A 200 OK IBCF_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to US_A 200 OK IMS_A forwards 200 OK response to UE_A 30 User A is informed that file transfer has been accepted by user B 31 ACK 32 33 33 ACK 34 35 35 36 37 38 39 AO 40 ACK 41 ACK 41 ACK 42 BYE	23							←				200 OK	AS/IM_B returns, possibly modified,
25 26 26 27 27 28 28 200 OK 29 200 OK 30 30 31 30 32 33 33 34 35 37 36 37 37 38 39 40 40 41 41 42 42 42	24						<u> </u>					200 OK	IMS_B forwards 200 OK response
26 10 IBCF_A 27 28 28 200 OK 29 200 OK 30 200 OK 31 200 OK 32 200 OK 33 31 34 33 34 34 35 36 36 37 37 38 38 39 40 41 41 42 42 UE_A relums, possibly modified, ack 42 UBCF_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to IMS_A 200 OK IMS_A forwards 200 OK response to UE_A 42 42	25						ľ					200 OK	
27 to IMS_A 28 200 OK 29 200 OK 30 200 OK 31 200 OK 32 31 33 33 34 33 35 36 36 37 37 38 39 40 40 41 41 42 42 BYE 42 BYE						<u> </u>							to IBCF_A
28 ito AS/IM_A 29 ito AS/IM_A returns, possibly modified, 200 OK response to IMS_A 30 200 OK 30 ito UE_A 30 ito UE_A 31 ito AS/IM_A returns, possibly modified, 200 OK response to UE_A 32 ito UE_A acknowledges the receipt of 200 OK for INVITE 32 ito AS/IM_A returns, possibly modified, ACK 33 ito AS/IM_A 34 ito AS/IM_A returns, possibly modified, ACK to IMS_A 36 ito AS/IM_A returns, possibly modified, ACK to IMS_A 37 ito AS/IM_A 38 ito AS/IM_B 40 ito AS/IM_B 41 ito AS/IM_B 42 ito AS/IM_B					←								to IMS_A
29 200 OK response to IMS_A 30 IMS_A forwards 200 OK response to UE_A 30 User A is informed that file transfer has been accepted by user B 31 ACK 32 ACK 33 ACK 34 ACK 35 ACK 36 ACK 37 ACK 38 ACK 40 ACK 41 ACK 42 BYE 42 BYE	27			←	_								to AS/IM_A
29 200 OK IMS_A forwards 200 OK response to UE_A 30 User A is informed that file transfer has been accepted by user B 31 ACK UE_A acknowledges the receipt of 200 OK for INVITE 32 ACK IMS_A forwards ACK to AS/IM_A 33 ACK IMS_A forwards ACK to INVITE ACK IMS_A forwards ACK to IBCF_A ACK IMS_A forwards ACK to IBCF_A ACK IBCF_A forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IMS_B forwards ACK to ISCF_B ACK IMS_B forwards ACK to ISCF_B ACK IMS_B forwards ACK to UE_B 40 File transfer starts (see clause 5.3.3) Image data via MSRP) File transfer starts (see clause 5.3.3) Image data via MSRP) File transfer starts (see clause 5.3.3) Image data via MSRP) File transfer 41 File transfer	28				→							200 OK	
30 User A is informed that file transfer has been accepted by user B 31 ACK UE_A acknowledges the receipt of 200 OK for INVITE 32 ACK IMS_A forwards ACK to AS/IM_A 33 ACK IMS_A forwards ACK to IBCF_A ACK IMS_A forwards ACK to IBCF_B ACK IBCF_B forwards ACK to IBCF_B ACK IMS_B forwards ACK to IMS_B ACK IMS_B forwards ACK to IMS_B ACK IMS_B forwards ACK to IMS_B ACK IMS_B forwards ACK to UE_B ACK IMS_B forwards ACK to UE_A releases the file transfer	29		←		_							200 OK	IMS_A forwards 200 OK response
31 ACK UE_A acknowledges the receipt of 200 OK for INVITE 32 33 ACK IMS_A forwards ACK to AS/IM_A 34 ACK IMS_A forwards ACK to IBCF_A 36 ACK IMS_A forwards ACK to IBCF_B 37 ACK IBCF_A forwards ACK to IBCF_B 38 ACK IBCF_B forwards ACK to IBCF_B 39 ACK IMS_B forwards ACK to AS/IM_B 40 ACK IMS_B forwards ACK to UE_B 41 File transfer starts (see clause 5.3.3 lmage data via MSRP) File transfer completed (size checked) File transfer completed (size checked)	30	←	_										User A is informed that file transfer
32 33 33 34 34 35 36 37 38 39 40 41 41 42	31				\ \							ACK	
33 34 35 36 37 38 39 40 41 42												1.01/	
34 34 35 35 36 36 37 38 39 40 41 41 42 42				<									
35 36 37 38 39 40 41 42	33				→								ACK to IMS_A
36 37 38 39 40 41 42						→							
37 38 39 40 41 42							\rightarrow						
38 38 39 ACK 40 ACK 41 ACK 42 BYE								\rightarrow					
39 ACK to IMS_B 40 ACK 41 IMS_B forwards ACK to UE_B 42 File transfer starts (see clause 5.3.3 lmage data via MSRP) File transfer completed (size checked) BYE UE_A releases the file transfer									\rightarrow				
40 41 File transfer starts (see clause 5.3.3 lmage data via MSRP) 41 File transfer completed (size checked) 42 BYE UE_A releases the file transfer								←					ACK to IMS_B
41 Image data via MSRP) 42 BYE								-		\rightarrow		ACK	
41 File transfer completed (size checked) 42 BYE	40	K									→		
42 BYE UE_A releases the file transfer	41												File transfer completed (size
	42				→							BYE	UE_A releases the file transfer

Step					Dired	ction						Message	Comment
	U	U	Α	Ι	Ι	1	I	Α		U	U		
	S	Е	S/	м	В	В	м	S/		E	S		
	е	Α		S	c	C	S			В	е		
	r A		M	Α	F	F B	В	MB			r B		
43							 					BYE	IMS_A forwards BYE to AS/IM_A
44												BYE	AS/IM_A returns, possibly modified,
				\rightarrow									BYE to IMS_A
45					→							BYE	IMS_A forwards BYE to IBCF_A
46						\rightarrow						BYE	IBCF_A forwards BYE to IBCF_B
47							\rightarrow					BYE	IBCF_B forwards BYE to IMS_B
48								\rightarrow				BYE	IMS_B forwards BYE to AS/IM_B
49							(BYE	AS/IM_B returns, possibly modified,
							N						BYE to IMS_B
50									\rightarrow			BYE	IMS_B forwards BYE to UE_B
51									-		→		User B is informed that file transfer
52							1					200 OK	completed UE B sends 200 OK for BYE
53												200 OK 200 OK	IMS_B forwards 200 OK response
55								\rightarrow				200 OK	to AS/IM_B
54												200 OK	AS/IM_B returns, possibly modified,
													200 OK response to IMS_B
55						<u> </u>						200 OK	IMS_B forwards 200 OK response
50													to IBCF_B
56					←							200 OK	IBCF_B forwards 200 OK response to IBCF_A
57												200 OK	IBCF_A forwards 200 OK response
0,				<								200 010	to IMS_A
58			_									200 OK	IMS_A forwards 200 OK response
													to AS/IM_A
59				\rightarrow								200 OK	AS/IM_A returns, possibly modified,
60												200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response
60		←										200 UK	to UE_A
61													User A is informed that file transfer
	K												completed

4.5.5.1.2 Instant file transfer - roaming (optional)

	Interoperability Tes	st Description									
Identifier:	TD_IMS_FILE_0002										
Summary:	IMS network supports instant File transfer service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts file transfer										
Configuration:	uration: CF_ROAM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B										
References	Test Purpose	Specification Reference									
	TP_IMS_5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1 (1 st numbered list)									
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5									
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11									
		(items 5 and 8 in 1 st numbered list)									
Use Case ref.:	UC_RCS_9_R										
Pre-test conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as per TS 186 011-2 [9], clause 4.2.1 UE_A is registered in IMS_A optionally using userPRES according to table 1 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 UE_A is optionally configured to receive notifications with watcher information UE_A is authorized to see presence information of UE_B 										

		Interoperability Test Description
	 IMS 	_A is configured to contact AS_A
		B is configured to contact ASB
	 AS_ 	B is optionally configured for reactive authorization
	 IMS_ 	_A is within the trust domain of IMS_B
	• UE_	A and UE_B have already performed capability discovery process
		A not configured for topology hiding
Test Sequence:	Step	
	1	User B initiates a file transfer to user A
	2	User A is informed of incoming file and accepts the transfer
	3	User B is informed that file transfer has been accepted by user A
	4	File transfer starts
	5	File transfer completed (size checked)
	6	User A is informed that file transfer completed
	7	User B is informed that file transfer completed
Conformance Criteria:	Check	
	1	TP_IMS_5046_01 in CFW step 6 (INVITE)
		ensure that {
		when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a Route_header
		not indicating the P-CSCF_SIP_URI of IMS_A and
		containing a Route_header
		indicating the "list of Service Route header URIs from the registration" and
		containing an additional Via_header
		containing (the P-CSCF_via_port_number and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		containing an additional topmost Record-Route_header
		indicating (the P-CSCF_port_number
		'where it awaits subsequent requests' from UE_A and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		not containing P-Preferred-Identity_header and
		containing a P-Asserted-Identity_header
		containing an address of UE_B and
		containing a P-Charging-Vector_header
		containing an icid-value_parameter }
	0	
	2	TP_IMS_5067_01 in CFW step 6 (INVITE)
		ensure that { when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a P-Charging-Vector_header
		}
	3	TP_IMS_5097_09 in CFW step 10 (INVITE)
		ensure that {
		when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }
		then { IMS_B sends the initial INVITE to AS_B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector_header
		(including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter and
		including access-network-charging-info) }
		}

ETSI

203 ETSI TS 102 901 V4.1.1 (2012-05)

Step					Direc	tion					Message	Comment
	U	U	Α	Ι		I	I	Α	U	U		
	s e	E A	S/	M S	B C	B C	M S	S/	EB	s e		
	r	~	M	Ă	F	F	В	M		r		
	Α		Α		Α	В		В		В		
1									←	_		User B initiates a file transfer to user
2											INVITE	UE_B sends INVITE to IMS_A to
				<u> </u>	_							establish a new session with the
												SDP offer indicating all specific data
3											100 Trying	for a new MSRP connection set up IMS_A responds with a 100 Trying
Ŭ					_				\rightarrow		loo liyiig	provisional response
4					→						INVITE	IMS_A forwards INVITE to IBCF_A
5				~	_						100 Trying	IBCF_A responds with a 100 Trying
6				-		`					INVITE	provisional response IBCF_A forwards INVITE to IBCF_B
7						-					100 Trying	IBCF_A lowards INVITE to IBCF_B
,					←						roo rrying	provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						k —					100 Trying	IMS_B responds with a 100 Trying
10						ſ					INVITE	provisional response IMS_B forwards INVITE to AS/IM_B
10											100 Trying	AS/IM_B responds with a 100 Trying
							←				Too Trying	provisional response
12							<i>(</i>				INVITE	AS/IM_B returns, possibly modified,
- 10											100 T	INVITE to IMS_B
13								\rightarrow			100 Trying	IMS_B responds with a 100 Trying provisional response
14						←					INVITE	IMS_B forwards INVITE to IBCF_B
15						Ē					100 Trying	IBCF_B responds with a 100 Trying
												provisional response
16					←	_						IBCF_B forwards INVITE to IBCF_A
17						\rightarrow					100 Trying	IBCF_A responds with a 100 Trying provisional response
18				~							INVITE	IBCF_A forwards INVITE to IMS_A
19											100 Trying	IMS_A responds with a 100 Trying
					7							provisional response
20			←									IMS_A forwards INVITE to AS/IM_A
21				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
22											INVITE	AS/IM_A returns, possibly modified,
												INVITE to IMS_A
23			←								100 Trying	IMS_A responds with a 100 Trying
24		/									INVITE	provisional response IMS_A forwards INVITE to UE_A
25		Ì									100 Trying	UE_A optionally responds with a 100
				\rightarrow								Trying provisional response
26	←	_										User A is informed of incoming file
27											200 OK	and accepts the transfer UE_A responds INVITE with 200 OK
21						1					200 01	response with SDP to indicate that
				\rightarrow								the session has been accepted and
												inform B-side with specific data for a
28						1					200 OK	new MSRP connection set up IMS_A forwards 200 OK response to
20			←			1					200 01	AS/IM_A
29				_							200 OK	AS/IM_A returns, possibly modified,
											000.01/	200 OK response to IMS_A
30					→	1					200 OK	IMS_A forwards 200 OK response to IBCF_A
31											200 OK	IBCF_A forwards 200 OK response
						\rightarrow						to IBCF_B
32							\rightarrow				200 OK	IBCF_B forwards 200 OK response
	I	I	I	I	I	1	I		1	I		to IMS_B

Step					Direc	tion					Message	Comment
· ·	U	U	Α	I	Ι	I	I	Α	U	U	Ŭ	
	S	E	S/	М	В	В	M	S/	E	S		
	е	Α	I	S	C	C	S		В	е		
	r A		M A	Α	F A	F B	В	M B		r B		
33	$-\hat{\Gamma}$										200 OK	IMS_B forwards 200 OK response to
								\rightarrow				AS/IM_B
34							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
35						~					200 OK	IMS_B forwards 200 OK response to
36					~						200 OK	IBCF_B IBCF_B forwards 200 OK response
37					Ì						200 OK	to IBCF_A IBCF_A forwards 200 OK response
38											200 OK	to IMS_A IMS_A forwards 200 OK response to
									\rightarrow		200 OK	UE_B
39										→		User B is informed that file transfer has been accepted by user B
40				←		_		_			ACK	UE_B acknowledges the receipt of 200 OK for INVITE
41					→						ACK	IMS_A forwards ACK to IBCF_A
42						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44								\rightarrow			ACK	IMS B forwards ACK to AS/IM B
45							,				ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
46						←					ACK	IMS_B forwards ACK to IBCF_B
47					←						ACK	IBCF_B forwards ACK to IBCF_A
48				←	_						ACK	IBCF_A forwards ACK to IMS_A
49			←								ACK	IMS_A forwards ACK to AS/IM_A
50											ACK	AS/IM_A returns, possibly modified,
54											1.01/	ACK to IMS_A
51 52		<									ACK	IMS_A forwards ACK to UE_A File transfer starts (see clause 5.3.3
	←									→		Image data via MSRP)
53												File transfer completed (size checked)
54				←							BYE	UE_B releases the file transfer session with BYE
55					\rightarrow						BYE	IMS_A forwards BYE to IBCF_A
56						\rightarrow					BYE	IBCF_A forwards BYE to IBCF_B
57							\rightarrow				BYE	IBCF_B forwards BYE to IMS_B
58								\rightarrow			BYE	IMS_B forwards BYE to AS/IM_B
59							←				BYE	AS/IM_B returns, possibly modified, BYE to IMS_B
60						←					BYE	IMS_B forwards BYE to IBCF_B
61					←						BYE	IBCF_B forwards BYE to IBCF_A
62				←							BYE	IBCF_A forwards BYE to IMS_A
63			←								BYE	IMS_A forwards BYE to AS/IM_A
64			È	→							BYE	AS/IM_A returns, possibly modified,
65		←		_							BYE	BYE to IMS_A IMS_A forwards BYE to UE_A
66												User A is informed that file transfer completed
67				→							200 OK	UE_A sends 200 OK for BYE
68			←								200 OK	IMS_A forwards 200 OK response to AS/IM_A
69				→							200 OK	AS/IM_A returns, possibly modified,
70											200 OK	200 OK response to IMS_A IMS_A forwards 200 OK response to
10					\rightarrow							IBCF_A

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s e r B		
71						\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
72							\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
73								\rightarrow			200 OK	IMS_B forwards 200 OK response to AS/IM_B
74							←				200 OK	AS/IM_B returns, possibly modified, 200 OK response to IMS_B
75						←					200 OK	IMS_B forwards 200 OK response to IBCF_B
76					←						200 OK	IBCF_B forwards 200 OK response to IBCF_A
77				←	_						200 OK	IBCF_A forwards 200 OK response to IMS_A
78									\rightarrow		200 OK	IMS_A forwards 200 OK response to UE_B
79									-	\rightarrow		User B is informed that file transfer completed

4.5.5.2 Instant file transfer rejection

4.5.5.2.1 Instant file transfer rejection - interworking

	Interoperability To	est Description							
Identifier:	TD IMS FILE 0003								
Summary:	IMS network supports instant File transfer service and messages exchange between two users in their home networks can be performed. User A starts file transfer, but User B rejects the invitation								
Configuration:	CF_INT_AS								
SUT	IMS_A and IMS_B								
References	Test Purpose	Specification Reference							
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11 (item 9 in 1 st numbered list)							
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5 (item 4 in 1 st numbered list)							
	TP_IMS_5115_08								
Use Case ref.:	UC_RCS_9_I								
Pre-test conditions:	 UE_A and UE_B have IP beau per TS 186 011-2 [9], clause 4 UE_A is registered in IMS_A of UE_B is registered in IMS_B of UE_A is optionally configured UE_A is authorized to see pree IMS_A is configured to contact IMS_B is configured to contact AS_B is optionally configured IMS_A is within the trust domain 	optionally using userPRES according to table 1 optionally using userPRES according to table 1 to receive notifications with watcher information sence information of UE_B t AS_A t AS_B for reactive authorization ain of IMS_B y performed capability discovery process							
Test Sequence:	Step								
rest sequence.	1 User A initiates a file tra	nsfor to usor R							
		coming file and rejects the transfer							
	5 User A is informed that	file transfer has been rejected by user B							

		Interoperability Test Description
Conformance	Check	
Criteria:	Check	
sinteria:	4	
	1	TP_IMS_5097_01 in CFW step 10 (INVITE):
		ensure that {
		when { UE_A sends an initial INVITE to UE_B }
		then { IMS_B receives the initial INVITE
		not containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_A
		containing a P-Charging-Vector_header
		(containing an icid-value_parameter and
		containing a orig-ioi_parameter indicating IMS_A and
		not containing an access-network-charging-info_parameter and
		not containing a term-ioi_parameter) and
		containing a Record-Route_header
		indicating the originating S-CSCF_SIP_URI }
	2	TP_IMS_5108_03 in CFW step 14 (INVITE)
	2	ensure that {
		when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B}
		then {IMS_B sends the INVITE to AS_B
		•
		containing a topmost Route_header
		indicating the SIP_URI of AS_B and
		containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_B and
		containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter }
		}
	3	TP_IMS_5115_08 in CFW step 25 (200 OK)
		ensure that {
		when { IMS_B receives 200_response from AS_B addressed to UE_A }
	1	then { IMS_B sends the 200_response to IMS_A
	1	containing a P-Charging-Vector_header
		including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		including a term-ioi_parameter
	1	indicating operator_identifier of IMS_B }

ETSI TS 102 901 V4.1.1 (2012-05)

Step					Direc	tion					Message	Comment
	U	U	Α	Ι	Ι	Ι	I	Α	U	U	Ŭ	
	S	E	S/	M	B	B	M	S/	E B	S		
	e r	Α	M	S A	C F	C F	S B	M	в	e r		
	Ă		A		Ă	B	5	В		B		
1		→										User A initiates a file transfer to user
2											INVITE	B UE_A sends INVITE to IMS_A to
2				→								establish a session with the SDP offer indicating all specific data for a MSRP connection set up
3		←		_							100 Trying	IMS_A responds with a 100 Trying provisional response
4			(INVITE	IMS_A forwards INVITE to AS/IM_A
5				→							100 Trying	AS/IM_A responds with a 100 Trying provisional response
6				→							INVITE	AS/IM_A returns, possibly modified, INVITE to IMS_A
7			←	_							100 Trying	IMS_A responds with a 100 Trying provisional response
8					→						INVITE	IMS_A forwards INVITE to IBCF_A
9				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
10						\rightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
11					←						100 Trying	IBCF_B responds with a 100 Trying provisional response
12							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
13						←					100 Trying	IMS_B responds with a 100 Trying provisional response
14								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
15							←				100 Trying	AS/IM_B responds with a 100
16							←				INVITE	Trying provisional response AS/IM_B returns, possibly modified, INVITE to IMS_B
17								→			100 Trying	IMS_B responds with a 100 Trying provisional response
18									\rightarrow		INVITE	IMS_B forwards INVITE to UE_B
19							←				100 Trying	UE_B optionally responds with a 100 Trying provisional response
20										→		User B is informed of incoming file and rejects the transfer
21							←	-	-		603 Decline	UE_B responds INVITE with 603 Decline to indicate that the session
22								→			603 Decline	has been rejected IMS_B forwards 603 Decline
23							<u> </u>				603 Decline	response to AS/IM_B AS/IM_B returns, possibly modified,
24						-					603 Decline	603 Decline response to IMS_B IMS_B forwards 603 Decline
25					<u> </u>	Ì					603 Decline	response to IBCF_B IBCF_B forwards 603 Decline
26											603 Decline	response to IBCF_A IBCF_A forwards 603 Decline
27											603 Decline	response to IMS_A IMS_A forwards 603 Decline
			<								603 Decline	response to AS/IM_A AS/IM_A returns, possibly modified,
28				→								603 Decline response to IMS_A
29		←		_							603 Decline	IMS_A forwards 603 Decline response to UE_A
30	←											User A is informed that file transfer has been rejected by user B
31				→							ACK	UE_A acknowledges the receipt of 603 Decline response for INVITE
32			←								ACK	IMS_A forwards ACK to AS/IM_A

207

Step					Direc	ction					Message	Comment
	U	U	Α			I	I	Α	U	U		
	S	Е	S/	М	В	В	М	S/	Е	s		
	е	Α	I	S	С	С	S	I	в	е		
	r		М	Α	F	F	В	М		r		
	<u>A</u>		Α		Α	В		В		В		
33											ACK	AS/IM_A returns, possibly modified,
				1								ACK to IMS_A
34					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
35						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
36							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
37								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
38							/				ACK	AS/IM_B returns, possibly modified,
												ACK to IMS_B
39									\rightarrow		ACK	IMS_B forwards ACK to UE_B

4.5.5.2.2 Instant file transfer rejection - roaming (optional)

	Interoperability Te	est Description							
Identifier:	TD_IMS_FILE_0004	•							
Summary:	IMS network supports instant File transfer service and messages exchange between two users, one user in its home network and one user roaming can be performed. User B starts file transfer, but User A rejects the invitation								
Configuration:	CF_ROAM_AS (OPTIONAL)								
SUT	IMS_A and IMS_B								
References	Test Purpose TP_IMS_5046_01	Specification ReferenceTS 124 229 [1], clause 5.2.6.3.3 ¶1(1 st numbered list)							
	TP_IMS_5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5							
	TP_IMS_5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11 (items 5 and 8 in 1 st numbered list)							
Use Case ref.:	UC_RCS_9_R								
Pre-test conditions:	 UE_A and UE_B have IP bear per TS 186 011-2 [9], clause 4 UE_A is registered in IMS_A of UE_B is registered in IMS_B v table 1 UE_A is optionally configured 5 UE_A is authorized to see pressonal IMS_A is configured to contact IMS_B is configured to contact AS_B is optionally configured for a software of the sof	ptionally using userPRES according to table 1 ia IMS_A optionally using userPRES according to to receive notifications with watcher information sence information of UE_B t AS_A t AS_B for reactive authorization in of IMS_B performed capability discovery process							
Test Sequence:		nsfer to user A coming file and rejects the transfer ile transfer has been rejected by user B							

		Interoperability Test Description
Conformance	Check	
Criteria:	Oneck	
	1	TP_IMS_5046_01 in CFW step 6 (INVITE)
		ensure that {
		when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a Route_header
		not indicating the P-CSCF_SIP_URI of IMS_A and
		containing a Route_header
		indicating the "list of Service Route header URIs
		from the registration" and
		containing an additional Via_header
		containing (the P-CSCF_via_port_number and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		containing an additional topmost Record-Route_header
		indicating (the P-CSCF_port_number
		where it awaits subsequent requests' from UE_A and
		(the P-CSCF-FQDN_address or
		the P-CSCF-IP_address)) of IMS_A and
		not containing P-Preferred-Identity_header and
		containing a P-Asserted-Identity_header
		containing an address of UE_B and
		containing a P-Charging-Vector_header
		containing an icid-value_parameter }
		}
	2	TP_IMS_5067_01 in CFW step 6 (INVITE)
		ensure that {
		when { IMS_A receives an initial INVITE from UE_B }
		then { IMS_A sends the INVITE to IMS_B
		containing a P-Charging-Vector_header
		}
	3	TP_IMS_5097_09 in CFW step 10 (INVITE)
	3	
		ensure that { when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A }
		then { IMS_B sends the initial INVITE to AS_B
		containing a Route_header
		indicating the SIP_URI of AS_B and
		containing a P-Charging-Function-Addresses_header and
		containing a P-Charging-Vector header
		(including a orig-ioi_parameter
		indicating operator_identifier of IMS_A and
		not including a term-ioi_parameter and
		including access-network-charging-info) }

210 ETSI TS 102 901 V4.1.1 (2012-05)

2	1()

Step					Direct	ion					Message	Comment
	U	U	Α	I	1	I	Ι	Α	U	U		
	s	E A	S/	M S	B C	B C	M S	S/	E B	s e		
	e r	A	M	A	F	F	B	M	D	r		
	Α		Α		Α	В		В		В		
1									←	_		User B initiates a file transfer to user
2											INVITE	UE_B sends INVITE to IMS_A to
				.								establish a new session with the
												SDP offer indicating all specific data for a new MSRP connection set up
3											100 Trying	IMS_A responds with a 100 Trying
											, ,	provisional response
4)							IMS_A forwards INVITE to IBCF_A
5				←							100 Trying	IBCF_A responds with a 100 Trying provisional response
6						→					INVITE	IBCF_A forwards INVITE to IBCF_B
7					/						100 Trying	IBCF_B responds with a 100 Trying
												provisional response
8							\rightarrow				INVITE	IBCF_B forwards INVITE to IMS_B
9						←	\neg				100 Trying	IMS_B responds with a 100 Trying provisional response
10								\rightarrow			INVITE	IMS_B forwards INVITE to AS/IM_B
11											100 Trying	AS/IM_B responds with a 100 Trying
12							Ĩ				INVITE	provisional response AS/IM_B returns, possibly modified,
12							←					INVITE to IMS_B
13								_			100 Trying	IMS_B responds with a 100 Trying
1.4						,		ĺ			INVITE	provisional response
14 15						< <u> </u>					100 Trying	IMS_B forwards INVITE to IBCF_B IBCF_B responds with a 100 Trying
10							→				roo rrying	provisional response
16					←	_					INVITE	IBCF_B forwards INVITE to IBCF_A
17						→					100 Trying	IBCF_A responds with a 100 Trying provisional response
18				K							INVITE	IBCF_A forwards INVITE to IMS_A
19					<u>`</u>						100 Trying	IMS_A responds with a 100 Trying
					1							provisional response
20 21			(INVITE	IMS_A forwards INVITE to AS/IM_A
21				\rightarrow							100 Trying	AS/IM_A responds with a 100 Trying provisional response
22				—							INVITE	AS/IM_A returns, possibly modified,
23											100 Trying	INVITE to IMS_A IMS_A responds with a 100 Trying
23			←	_							Too Trying	provisional response
24		←									INVITE	IMS_A forwards INVITE to UE_A
25				\rightarrow							100 Trying	UE_A optionally responds with a 100
26												Trying provisional response User A is informed of incoming file
	¥											and rejects the transfer
27											603 Decline	UE_A responds INVITE with 603
			1									Decline to indicate that the session has been rejected
28			4								603 Decline	IMS_A forwards 603 Decline
											000 D	response to AS/IM_A
29				\rightarrow							603 Decline	AS/IM_A returns, possibly modified, 603 Decline response to IMS_A
30					2						603 Decline	IMS_A forwards 603 Decline
					1							response to IBCF_A
31						→					603 Decline	IBCF_A forwards 603 Decline response to IBCF_B
32							_				603 Decline	IBCF_B forwards 603 Decline
							~					response to IMS_B
33								\rightarrow			603 Decline	IMS_B forwards 603 Decline response to AS/IM_B
	I	I	1	I	I	I	I	1	I	I	L	10000000000000000000000000000000000000

Step					Direc	tion					Message	Comment
	U s r A	U E A	A S/ I M A	I M S A	I B C F A	I B C F B	I M S B	A S/ I M B	U E B	U s r B		
34							(603 Decline	AS/IM_B returns, possibly modified, 603 Decline response to IMS_B
35						←					603 Decline	IMS_B forwards 603 Decline response to IBCF_B
36					←						603 Decline	IBCF_B forwards 603 Decline response to IBCF_A
37				←	_						603 Decline	IBCF_A forwards 603 Decline response to IMS_A
38									\rightarrow		603 Decline	IMS_A forwards 603 Decline response to UE_B
39										→		User B is informed that file transfer has been rejected by user B
40				←							ACK	UE_B acknowledges the receipt of 603 Decline response for INVITE
41					\rightarrow						ACK	IMS_A forwards ACK to IBCF_A
42						\rightarrow					ACK	IBCF_A forwards ACK to IBCF_B
43							\rightarrow				ACK	IBCF_B forwards ACK to IMS_B
44								\rightarrow			ACK	IMS_B forwards ACK to AS/IM_B
45							←				ACK	AS/IM_B returns, possibly modified, ACK to IMS_B
46						←					ACK	IMS_B forwards ACK to IBCF_B
47					←						ACK	IBCF_B forwards ACK to IBCF_A
48				←	_						ACK	IBCF_A forwards ACK to IMS_A
49			←								ACK	IMS_A forwards ACK to AS/IM_A
50				\rightarrow							ACK	AS/IM_A returns, possibly modified, ACK to IMS_A
51		←									ACK	IMS_A forwards ACK to UE_A

4.5.5.3 Stop file transfer

4.5.5.3.1 Stop file transfer - interworking

	Interoperability Te	est Description						
Identifier:	TD_IMS_FILE_0005							
Summary:	IMS network supports instant File transfer service and messages exchange between two users in their home networks can be performed. User A starts file transfer, but User B terminates it in the middle of the process							
Configuration:	CF_INT_AS							
SUT	IMS_A and IMS_B							
References	Test Purpose	Specification Reference						
	TP_IMS_5097_01	TS 124 229 [1], clause 5.4.3.2 ¶11						
		(item 9 in 1 st numbered list)						
	TP_IMS_5108_03	TS 124 229 [1], clause 5.4.3.3 ¶5						
		(item 4 in 1 st numbered list)						
	TP_IMS_5115_08	TS 124 229 [1], clause 5.4.3.3 ¶89						
		(4 th numbered list)						
Use Case ref.:	UC_RCS_9_I							
Pre-test	 HSS of IMS_A and of IMS B is 	configured according to table 1						
conditions:		ers established to their respective IMS networks as						
	 UE_A is registered in IMS_A o 	ptionally using userPRES according to table 1						
		ptionally using userPRES according to table 1						
		to receive notifications with watcher information						
	 UE_A is authorized to see pres 	sence information of UE_B						
	 IMS_A is configured to contact 	AS_A						

		Interoperability Test Description
	 IMS 	_B is configured to contact AS_B
		B is optionally configured for reactive authorization
		_A is within the trust domain of IMS_B
	 UE_ 	A and UE_B have already performed capability discovery process
		_A not configured for topology hiding
Test Sequence:	Step 1	Lloor A requests a file transfer with user P
	2	User A requests a file transfer with user B User B is requested to accept a file transfer
	3	User B accepts a file transfer
	4	User A is informed that request has been answered
	5	File transfer starts
	6A	User A terminates file transfer
	7A	User B is informed that file transfer has terminated
	8A	User A is informed that file transfer has terminated
	6B	User B terminates file transfer
	7B	User A is informed that file transfer has terminated
	8B	User B is informed that file transfer has terminated
	00	
Conformance Criteria:	Check	
	1	TP_IMS_5097_01 in CFW step 10 (INVITE):
		ensure that {
		when { UE_A sends an initial INVITE to UE_B }
		then { IMS_B receives the initial INVITE
		not containing a Route_header
		indicating the S-CSCF_SIP_URI of IMS_A containing a P-Charging-Vector_header
		(containing an icid-value_parameter and
		containing a orig-ioi_parameter indicating IMS_A and
		not containing an access-network-charging-info_parameter and
		not containing a term-ioi_parameter) and
		containing a Record-Route_header
		indicating the originating S-CSCF_SIP_URI }
		}
	2	} TP_IMS_5108_03 in CFW step 14 (INVITE)
	2	} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that {
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a Orig-ioi_parameter including a orig-ioi_parameter indicating operator_identifier of IMS_A and</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter</pre>
	2	<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a Orig-ioi_parameter including a orig-ioi_parameter indicating operator_identifier of IMS_A and</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a orig-ioi_parameter including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that {</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a orig-ioi_parameter including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } </pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a orig-ioi_parameter including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } then { IMS_B sends the 200_response to IMS_A</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } then { IMS_B sends the 200_response to IMS_A containing a P-Charging-Vector_header</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } then { IMS_B sends the 200_response to IMS_A containing a P-Charging-Vector_header including a orig-ioi_parameter including a orig-ioi_parameter including a orig-ioi_parameter {</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } then { IMS_B sends the 200_response to IMS_A containing a P-Charging-Vector_header including a orig-ioi_parameter including a orig-ioi_parameter including a orig-ioi_parameter including a orig-ioi_response to IMS_A containing a P-Charging-Vector_header including a orig-ioi_parameter including a orig-ioi_parameter</pre>
		<pre>} TP_IMS_5108_03 in CFW step 14 (INVITE) ensure that { when {IMS_B receives an initial INVITE from IMS_A addressed_to UE_B} then {IMS_B sends the INVITE to AS_B containing a topmost Route_header indicating the SIP_URI of AS_B and containing a Route_header indicating the S-CSCF_SIP_URI of IMS_B and containing a P-Charging-Vector_header including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter } } TP_IMS_5115_08 in CFW step 25 (200 OK) ensure that { when { IMS_B receives 200_response from AS_B addressed to UE_A } then { IMS_B sends the 200_response to IMS_A containing a P-Charging-Vector_header including a orig-ioi_parameter including a orig-ioi_parameter including a orig-ioi_parameter {</pre>

Step				D	irecti	on				Message	Comment
	U		-		I	I	1	U	U	Ŭ Ŭ	
	s e		E N A S			B C	M S	E B	s e		
	r					F	в	5	r		
	Α			4	<u> </u>	в			в		
1		\rightarrow									User A requests a file transfer with user B
2			\longrightarrow							INVITE	UE_A sends INVITE to file transfer session with user B
3			,							100 Trying	IMS_A responds with a 100 Trying provisional
											response
4				\longrightarrow							IMS_A forwards INVITE to IBCF_A
5				\leftarrow						100 Trying	IBCF_A responds with a 100 Trying provisional response
6					\longrightarrow					INVITE	IBCF_A forwards INVITE to IBCF_B
7										100 Trying	IBCF_B responds with a 100 Trying provisional
					`						response
8							*			INVITE	IBCF_B forwards INVITE to IMS_B
9						←				100 Trying	IMS_B responds with a 100 Trying provisional response
10								→		INVITE	IMS_B forwards INVITE to UE_B
11						İ	<u> </u>			100 Trying	UE_B responds with a 100 Trying provisional
40											response
12 13									-	190 Dinging	User B is requested to accept a file transfer UE_B responds to initial INVITE with 180
15							←	-		180 Ringing	Ringing to indicate that it has started alerting
14						(-			180 Ringing	IMS_B forwards 180 Ringing response to IBCF_B
15					←					180 Ringing	IBCF_B forwards 180 Ringing response to IBCF_A
16				<u> </u>						180 Ringing	IBCF_A forwards 180 Ringing response to IMS_A
17			←							180 Ringing	IMS_A forwards the 180 Ringing response to UE_A
18								←	-		User B accepts a file transfer
19							←			200 OK	UE_B responds INVITE with 200 OK to indicate that the request has been accepted
20						←				200 OK	IMS_B forwards 200 OK response to IBCF_B
21				,	\leftarrow					200 OK	IBCF_B forwards 200 OK response to IBCF_A
22			,	<u> </u>						200 OK 200 OK	IBCF_A forwards 200 OK response to IMS_A
23 24			`							200 OK	IMS_A forwards 200 OK response to UE_A User A is informed that request has been
24	K ←										answered
25										ACK	UE_A acknowledges the receipt of 200 OK for INVITE
26				\longrightarrow						ACK	IMS_A forwards ACK to IBCF_A
27					\longrightarrow					ACK	IBCF_A forwards ACK to IBCF_B
28							→			ACK	IBCF_B forwards ACK to IMS_B
29								→		ACK	IMS_B forwards ACK to UE_B
30									→		File transfer starts (see clause 5.3.3 Image data via MSRP)
31A		\rightarrow								DVE	User A terminates file transfer
32A			\rightarrow	、						BYE	UE_A releases the call with BYE
33A				\longrightarrow	、					BYE BYE	IMS_A forwards BYE to IBCF_A IBCF_A forwards BYE to IBCF_B
34A 35A					$ \longrightarrow$		_			BYE	IBCF_A forwards BYE to IBCF_B IBCF_B forwards BYE to IMS_B
36A							1	→		BYE	IMS_B forwards BYE to UE_B
37A									→		User B is informed that file transfer has terminated
38A							<u> </u>	_		200 OK	UE_B sends 200 OK for BYE
39A						<u> </u>	Ĺ			200 OK	IMS_B forwards 200 OK response to IBCF_B
40A					\leftarrow	ľ				200 OK	IBCF_B forwards 200 OK response to IBCF_A
41A				\leftarrow						200 OK	IBCF_A forwards 200 OK response to IMS_A
	. 1		. !		•	•		•	1	N	·

Step				Dire	ction					Message	Comment
44.4	U	U	I	1				U	U		
	S	E	М	в	в		Λ	Е	S		
	е	Α	S	C	C	5		В	е		
	r A		Α	F A	F B		3		r B		
42A						<u> </u>				200 OK	IMS_A forwards the 200 OK response to UE_A
43A											User A is informed that file transfer has
											terminated
44A						4	,			OPTIONS	UE_B sends OPTIONS to IMS_B to verify
						ſ	•				availability of file transfer capability of the UE_A
45A					(OPTIONS	IMS_B forwards OPTIONS to IBCF_B
46A				\leftarrow	_					OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
47A			←	-						OPTIONS	IBCF_A forwards OPTIONS to IMS_A
48A		<								OPTIONS	IMS_A forwards OPTIONS to UE_A
49A			→							200 OK	UE_A responds 200 OK to IMS_A with updated capabilities
50A				→						200 OK	IMS_A forwards 200 OK to IBCF_A
50A				´	\rightarrow					200 OK 200 OK	IBCF_A forwards 200 OK to IBCF_B
52A					Ĺ					200 OK	IBCF_B forwards 200 OK to IMS_B
53A						1		*		200 OK	IMS_B forwards 200 OK to UE_B
31B								` (_	200 011	User B terminates file transfer
32B						ŧ	<u>.</u>	L)		BYE	UE_B releases the call with BYE
33B					€					BYE	IMS_B forwards BYE to IBCF_B
34B				←	_					BYE	IBCF_B forwards BYE to IBCF_A
35B			←	_						BYE	IBCF_A forwards BYE to IMS_A
36B		←								BYE	IMS_A forwards BYE to UE_A
37B	,										User A is informed that file transfer has
											terminated
38B			→							200 OK	UE_A sends 200 OK for BYE
39B				\rightarrow						200 OK	IMS_A forwards 200 OK response to IBCF_A
40B				_	\rightarrow					200 OK	IBCF_A forwards 200 OK response to IBCF_B
41B					_	\rightarrow				200 OK	IBCF_B forwards 200 OK response to IMS_B
42B				_		ŀ		*		200 OK	IMS_B forwards the 200 OK response to UE_B
43B									→		User B is informed that file transfer has
44B										OPTIONS	terminated UE_A sends OPTIONS to IMS_A to verify
)								availability of file transfer capability of the UE_B
45B				\rightarrow						OPTIONS	IMS_A forwards OPTIONS to IBCF_A
46B					\rightarrow					OPTIONS	BCF_A forwards OPTIONS to IBCF_B
47B						\rightarrow				OPTIONS	IBCF_B forwards OPTIONS to IMS_B
48B								*		OPTIONS	IMS_B forwards OPTIONS to UE_B
49B										200 OK	UE_B responds with 200 OK to IMS_B with
						ſ					updated capabilities
50B					←					200 OK	IMS_B forwards 200 OK to IBCF_B
51B				\leftarrow	-					200 OK	IBCF_B forwards 200 OK to IBCF_A
52B			\leftarrow	-						200 OK	IBCF_A forwards 200 OK to IMS_A
53B		←	-							200 OK	IMS_A forwards 200 OK to UE_A

4.5.5.3.2 Stop file transfer - roaming (optional)

	Interoperability Test Description										
Identifier:	TD_IMS_FILE_0006										
-	IMS network supports instant File transfer service and messages exchange between two users, one user in its home network and one user roaming can be performed. User A starts file transfer, but User B terminates it in the middle of the process										
Configuration:	CF_ROAM_AS (OPTIONAL)										
SUT	IMS_A and IMS_B										

		Interoperability Tes									
References	Test Pur		Specification Reference								
	TP_IMS_	5046_01	TS 124 229 [1], clause 5.2.6.3.3 ¶1								
			(1 st numbered list)								
	TP_IMS_	5067_01	TS 124 229 [1], clause 5.2.7.2 ¶5								
	TP_IMS_	5097_09	TS 124 229 [1], clause 5.4.3.2 ¶11								
			(items 5 and 8 in 1 st numbered list)								
Use Case ref.:	UC_RCS	UC_RCS_9_R									
Pre-test	 HSS 	of IMS_A and of IMS B is o	configured according to table 1								
conditions:	 HSS of IMS_A and of IMS B is configured according to table 1 UE_A and UE_B have IP bearers established to their respective IMS networks as 										
	 DE_A and DE_B have IP bearers established to their respective INIS networks as per TS 186 011-2 [9], clause 4.2.1 										
	 UE_A is registered in IMS_A optionally using userPRES according to table 1 										
	 UE_B is registered in IMS_B via IMS_A optionally using user RES according to 										
	 UE_B is registered in IMS_B via IMS_A optionally using userPRES according to table 1 										
			receive notifications with watcher information								
		A is authorized to see prese									
		_A is configured to contact									
		_B is configured to contact									
		B is optionally configured fo	—								
		A is within the trust domair									
			performed capability discovery process								
	● IMS_	_A not configured for topolo	gy niaing								
Teet Comuch cou	Stor										
Test Sequence:	Step										
	1	User A requests a file tran									
	2 User B is requested to accept file transfer										
	3										
	4		equest has been answered								
	5	File transfer starts									
	6A User A terminates file transfer										
	7A User B is informed that file transfer has terminated										
	8A User A is informed that file transfer has terminated										
	6B User B terminates file transfer										
	7B User A is informed that file transfer has terminated										
	8B User B is informed that file transfer has terminated										
	00										
Conformance	Check										
Conformance Criteria:											
		TP_IMS_5046_01 in CFV	V step 6 (INVITE)								
	Check	TP_IMS_5046_01 in CFV ensure that {	V step 6 (INVITE)								
	Check	ensure that {	V step 6 (INVITE) an initial INVITE from UE_B }								
	Check	ensure that {	an initial INVITE from UE_B }								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou	an initial INVITE from UE_B } INVITE to IMS_B te_header								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou	an initial INVITE from UE_B } INVITE to IMS_B								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou not indicating th containing a Rou	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header ist of Service Route header URIs he registration" and								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header ist of Service Route header URIs								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header ist of Service Route header URIs he registration" and								
	Check	ensure that { when { IMS_A receives then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs he registration" and ditional Via_header								
	Check	ensure that { when { IMS_A receives : then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs he registration" and ditional Via_header P-CSCF_via_port_number and								
	Check	ensure that { when { IMS_A receives : then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C the P-C	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs he registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or								
	Check	ensure that { when { IMS_A receives : then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C the P-C containing an add	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs he registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C the P-C containing an add indicating (the F	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number								
	Check	ensure that { when { IMS_A receives : then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C the P-C containing an add indicating (the F 'where it	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs he registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C containing an add indicating (the F where it (the P-C	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C containing an add indicating (the F where it (the P-C containing an containing an add indicating (the F	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or SCF-IP_address)) of IMS_A and								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing (the (the P-C containing an add indicating (the F where it (the P-C the P-C containing P-C	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or SCF-IP_address)) of IMS_A and Preferred-Identity_header and								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing of the (the P-C the P-C containing an add indicating (the F where it (the P-C the P-C containing a P-As	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or SCF-IP_address)) of IMS_A and Preferred-Identity_header and sserted-Identity_header								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing an add containing an add indicating (the Containing an add indicating (the P-C the P-C containing a P-As containing a p-As containing an add	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or SCF-IP_address)) of IMS_A and Preferred-Identity_header and asserted-Identity_header ddress of UE_B and								
	Check	ensure that { when { IMS_A receives } then { IMS_A sends the containing a Rou not indicating th containing a Rou indicating the "I from t containing an add containing an add containing an add indicating (the (the P-C containing an add indicating (the F where it (the P-C the P-C containing an add indicating P- containing a P-As containing a P-C	an initial INVITE from UE_B } INVITE to IMS_B te_header ne P-CSCF_SIP_URI of IMS_A and te_header list of Service Route header URIs the registration" and ditional Via_header P-CSCF_via_port_number and SCF-FQDN_address or SCF-IP_address)) of IMS_A and ditional topmost Record-Route_header P-CSCF_port_number awaits subsequent requests' from UE_A and SCF-FQDN_address or SCF-IP_address)) of IMS_A and Preferred-Identity_header and sserted-Identity_header								

	Interoperability Test Description
2	TP_IMS_5067_01 in CFW step 6 (INVITE) ensure that { when { IMS_A receives an initial INVITE from UE_B } then { IMS_A sends the INVITE to IMS_B containing a P-Charging-Vector_header }
3	TP_IMS_5097_09 in CFW step 10 (INVITE) ensure that { when { IMS_B receives an initial INVITE from IMS_A addressed to UE_A } then { IMS_B sends the initial INVITE to AS_B containing a Route_header indicating the SIP_URI of AS_B and containing a P-Charging-Function-Addresses_header and containing a P-Charging-Vector_header (including a orig-ioi_parameter indicating operator_identifier of IMS_A and not including a term-ioi_parameter and including access-network-charging-info) }

Step				Dire	ectio	n				Messa	aqe	Comment
	U	U	I		I		I	U	U		J-	
	s	Е	М	В	В		Μ	Е	s			
	е	Α	S	C	C F		S	В	е			
	r A		A	F	B		В		r B			
1	Ê	\rightarrow		Ĥ		<u> </u>						User A requests a file transfer with user B
2		_	→							INVITE		UE_A sends INVITE to a file transfer session with user B
3		←								100 Tryii	ng	IMS_A responds with a 100 Trying provisional response
4				\rightarrow				ĺ		INVITE		IMS_A forwards INVITE to IBCF_A
5			←	_						100 Tryii	ng	IBCF_A responds with a 100 Trying provisional response
6					\rightarrow					INVITE		IBCF_A forwards INVITE to IBCF_B
7				\leftarrow	_					100 Tryii	ng	IBCF_B responds with a 100 Trying provisional response
8					-)			INVITE		IBCF_B forwards INVITE to IMS_B
9					ŧ	,				100 Tryii	ng	IMS_B responds with a 100 Trying provisional response
10					ŧ		-			INVITE		IMS_B forwards INVITE to IBCF_B
11							×			100 Tryii	ng	IBCF_B responds with a 100 Trying provisional response
12				←						INVITE		IBCF_B forwards INVITE to IBCF_A
13					\rightarrow					100 Tryii	ng	IBCF_A responds with a 100 Trying provisional response
14			\leftarrow	_						INVITE		IBCF_A forwards INVITE to IMS_A
15				\rightarrow						100 Tryii	ng	IMS_A responds with a 100 Trying provisional response
16				_				\rightarrow		INVITE		IMS_A forwards INVITE to UE_B
17			←	_ _				_		100 Tryii	ng	UE_B responds with a 100 Trying provisional response
18								_	\rightarrow			User B is requested to accept file transfer
19			←	_ -	_					180 Ring	ging	UE_B responds to initial INVITE with 180 Ringing to indicate that it has started alerting
20				\rightarrow						180 Ring	ging	IMS_A forwards 180 Ringing response to IBCF_A
21				-	\rightarrow					180 Ring	ging	IBCF_A forwards 180 Ringing response to IBCF_B
22					ŀ		×			180 Ring	ging	IBCF_B forwards 180 Ringing response to
23					ŧ	<u>,</u>				180 Ring	ging	IMS_B forwards the 180 Ringing response to IBCF_B

Step			D) irecti	on			Message	Comment
	U	-		1	I I	U	U	lineccuge	
	s				B M		s		
	e				C S F B		e		
	r A				г в В		r B		
24				\leftarrow				180 Ringing	IBCF_B forwards 180 Ringing response to
25								180 Ringing	IBCF_A IBCF_A forwards 180 Ringing response to
25			<u> </u>						IMS_A
26		←						180 Ringing	IMS_A forwards 180 Ringing response to UE_A
27						←	_		User B accepts file transfer
28			<u> </u>					200 OK	UE_B responds INVITE with 200 OK to indicate
29			\longrightarrow					200 OK	that the request has been accepted IMS_A forwards 200 OK response to IBCF_A
30			,	\longrightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
31					\longrightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
32					←──			200 OK	IMS_B forwards 200 OK response to IBCF_B
33				\leftarrow				200 OK	IBCF_B forwards 200 OK response to IBCF_A
34			\leftarrow					200 OK	IBCF_A forwards 200 OK response to IMS_A
35		<							IMS_A forwards 200 OK response to UE_A
36	←	_							User A is informed that request has been
								ACK	answered UE_A acknowledges the receipt of 200 OK for
37									INVITE
38			\longrightarrow					ACK	IMS_A forwards ACK to IBCF_A
39				\longrightarrow				ACK	IBCF_A forwards ACK to IBCF_B
40					\rightarrow			ACK	IBCF_B forwards ACK to IMS_B
41				,	<u> </u>	,		ACK	IMS_B forwards ACK to IBCF_B
42 43			,	<u> </u>				ACK ACK	IBCF_B forwards ACK to IBCF_A IBCF_A forwards ACK to IMS_A
43								ACK	IMS_A forwards ACK to UE_B
									File transfer starts (see clause 5.3.3 Image
45							→		data via MSRP)
46A	←						→		User A terminates file transfer
47A								BYE	UE_A releases the call with BYE
48A			\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
49A				\rightarrow				BYE BYE	IBCF_A forwards BYE to IBCF_B IBCF_B forwards BYE to IMS_B
50A 51A					,			BYE	IMS_B forwards BYE to IBCF_B
52A				<u> </u>				BYE	IBCF_B forwards BYE to IBCF_A
53A			<u> </u>					BYE	IBCF_A forwards BYE to IMS_A
54A						→		BYE	IMS_A forwards BYE to UE_B
55A							_		User B is informed that file transfer has
							ĺ	000.01/	terminated
56A			<u> </u>					200 OK 200 OK	UE_B sends 200 OK for BYE IMS_A forwards 200 OK response to IBCF_A
57A 58A			\rightarrow					200 OK 200 OK	IBCF_A forwards 200 OK response to IBCF_A
58A 59A								200 OK 200 OK	IBCF_B forwards 200 OK response to IBCF_B
60A								200 OK	IMS_B forwards the 200 OK response to IBCF_B
61A				←				200 OK	IBCF_B forwards 200 OK response to IBCF_A
62A			←					200 OK	IBCF_A forwards 200 OK response to IMS_A
63A		←						200 OK	IMS_A forwards the 200 OK response to UE_A
64A									User A is informed that file transfer has
65A			,					OPTIONS	terminated UE_B sends OPTIONS to IMS_A to verify
			· .						availability of file transfer capability of the UE_A
66A			\rightarrow					OPTIONS	IMS_A forwards OPTIONS to IBCF_A
67A				$ \rightarrow$				OPTIONS OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
68A 69A								OPTIONS	IBCF_B forwards OPTIONS to IMS_B IMS_B forwards OPTIONS to IBCF_B
70A				<u> </u>				OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
1017	I	I	I	r _	I I	I	Ι		

Step				Dire	ectio	n			Message	Comment
	U	U	I	I	1	I	U	U		
	S	Е	Μ	В	В		Е	s		
	е	Α	S	C	C		В	е		
	r A		Α	F	F	_		r B		
71A			4)			OPTIONS	IBCF_A forwards OPTIONS to IMS_A
72A		/	`						OPTIONS	IMS_A forwards OPTIONS to UE_A
73A		Ì							200 OK	UE_A responds 200 OK to IMS_A with updated
134			\rightarrow						200 01	capabilities
74A				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
75A					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
76A					_				200 OK	IBCF B forwards 200 OK to IMS B
77A						<u>. </u>			200 OK	IMS_B forwards 200 OK to IBCF_B
78A				←					200 OK	IBCF_B forwards 200 OK to IBCF_A
79A			←	_					200 OK	IBCF_A forwards 200 OK to IMS_A
80A							\rightarrow		200 OK	IMS_A forwards 200 OK to UE_B
46B										User B terminates file transfer
47B			\leftarrow		_				BYE	UE_B releases the call with BYE
48B				\rightarrow					BYE	IMS_A forwards BYE to IBCF_A
49B					\rightarrow				BYE	IBCF_A forwards BYE to IBCF_B
50B					-				BYE	IBCF_B forwards BYE to IMS_B
51B					ŧ	<u>.</u>			BYE	IMS_B forwards BYE to IBCF_B
52B				←					BYE	IBCF_B forwards BYE to IBCF_A
53B			←						BYE	IBCF_A forwards BYE to IMS_A
54B		←							BYE	IMS_A forwards BYE to UE_A
55B										User A is informed that file transfer has
DOD										terminated
56B			\rightarrow						200 OK	UE_A sends 200 OK for BYE
57B				\rightarrow					200 OK	IMS_A forwards 200 OK response to IBCF_A
58B					\rightarrow				200 OK	IBCF_A forwards 200 OK response to IBCF_B
59B					-	\longrightarrow			200 OK	IBCF_B forwards 200 OK response to IMS_B
60B					•	<u>.</u>			200 OK	IMS_B forwards 200 OK response to IBCF_B
61B				←					200 OK	IBCF_B forwards 200 OK response to IBCF_A
62B			\leftarrow	-					200 OK	IBCF_A forwards 200 OK response to IMS_A
63B			_	_ -	—		\rightarrow		200 OK	IMS_A forwards the 200 OK response to UE_B
64B										User B is informed that file transfer has
055									ODTIONIC	
65B			\rightarrow						OPTIONS	UE_A sends OPTIONS to IMS_A to verify availability of file transfer capability of the UE_B
66B									OPTIONS	IMS_A forwards OPTIONS to IBCF_A
67B				´					OPTIONS	IBCF_A forwards OPTIONS to IBCF_B
68B					· (OPTIONS	IBCF B forwards OPTIONS to IMS B
69B						,			OPTIONS	IMS_B forwards OPTIONS to IBCF_B
70B				4		·]			OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
70B 71B			۷						OPTIONS	IBCF_B forwards OPTIONS to IBCF_A
71B 72B									OPTIONS	IMS_A forwards OPTIONS to UE_B
72B									200 OK	UE B responds with 200 OK to IMS A with
100			←	- [\neg		200 01	updated capabilities
74B				\rightarrow					200 OK	IMS_A forwards 200 OK to IBCF_A
75B					\rightarrow				200 OK	IBCF_A forwards 200 OK to IBCF_B
76B					, i	>			200 OK	IBCF_B forwards 200 OK to IMS_B
77B									200 OK	IMS_B forwards 200 OK to IBCF_B
78B				←	[200 OK	IBCF_B forwards 200 OK to IBCF_A
79B			←	``					200 OK	IBCF_A forwards 200 OK to IMS_A
80B		4	`						200 OK	IMS_A forwards 200 OK to UE_A
000		ľ,								

5 MSRP Test Specification

5.1 Introduction

MSRP is a text based, connection-oriented protocol specified in RFC 4975 [10], RFC 4976 [11] and RFC 6135 [12]. It is not designed for use as a standalone protocol and therefore it can be part of the SIP protocol. The MSRP URIs are exchanged using SDP in an offer/answer exchange via SIP.

NOTE: Following test descriptions shall be implemented within IMS-NNI Interoperability test descriptions.

5.2 Test Prerequisites

5.2.1 Authorization over MSRP

Client that wants to use the services of IM AS they need to authenticate with authorization procedure. Expected authorization procedure is detailed described in RFC 4976 [11] and its MSRP sequence diagram is:

Step	Direc	ction	Massaga	Comment					
Step	UE	AS IM	Message	Comment					
1	T.	>	AUTH	The UE sends AUTH					
2	€	-	401 Unauthorized	The AS IM responds with a valid HTTP Digest					
				authentication challenge					
3	· [·	>	AUTH	The UE sends another AUTH with authentication					
4	÷		200 OK	The AS IM responds with 200 OK.					

5.3 Use Cases

The test descriptions with call flow diagrams in clauses 4.5.3, 4.5.4 and 4.5.5 contain basic MSRP transactions which are only marked symbolically, e.g. "Users perform chatting". Detailed MSRP call flows are described in the present clause. This split of MSRP and SIP signalling has been chosen to keep the test description more readable.

5.3.1 Chat 1 to 1 via MSRP

Use case index UC_MSRP_01 is used.

NOTE: Call flows show only the first chat transmission from one user to another and back. Other transmissions follow depending on who sends the next text message to the other user; this message is transferred with SEND request to the other user.

Step			Dire	ction				Message	Comment
	U	U				U	U		
	S	Е				Е	S		
	е	Α				В	е		
	r						r		
	Α						В		
1		\rightarrow							User A write a chat message
2		_	 -	_ _	_	\rightarrow		SEND	UE A sends SEND MSRP with content to UE B
3		←	 		_	_		200 OK	UE B responds with 200 OK to UE A
4						-	→		User B read a chat message
5						←	-		User B write a chat message
6		←	 -		_	_		SEND	UE B sends SEND MSRP with content to UE A
7			 -	_		\rightarrow		200 OK	UE A responds with 200 OK to UE B
8	←								User A read a chat message

5.3.2 Chat 1 to many via MSRP

NOTE: Call flows show only the first chat transmission from one user to all other users. Other transmissions follow depending on who sends the next text message to the other user; this message is transferred with SEND request to the other parties.

5.3.2.1 Chat 1 to many via MSRP - Interworking

Use case index UC_MSRP_02_I is used.

Step				Direc	tion				Message	Comment
	U s r A	U E A	A S/ I M A		U E B	U s r B	U E C	U s r C		
1		\rightarrow								User A write a chat message
2		_	\rightarrow						SEND	UE A sends SEND MSRP with content to IM SERVER
3		←	_						200 OK	IM SERVER responds with 200 OK to UE A
4				-	→				SEND	IM SERVER sends SEND MSRP with content to UE B
5			←	-	-				200 OK	UE responds with 200 OK to IM SERVER
6						\rightarrow				User B read a chat message
7				-	_		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8			←	-	_		_		200 OK	UE C responds with 200 OK to IM SERVER
9								→		User C read a chat message

5.3.2.2 Chat 1 to many via MSRP - Roaming

Use case index UC_MSRP_02_R is used.

Step			D)irec	tion				Message	Comment
	U s e r A	U E A	S	A 5/ I M B	U E B	U s r B	U E C	U s e r C		
1					-				SEND	UE A sends SEND MSRP with content to IM SERVER
2					→	ĺ			200 OK	IM SERVER responds with 200 OK to UE A
3					←	_				User B write a chat message
4		←							SEND	IM SERVER sends SEND MSRP with content to UE B
5			\rightarrow						200 OK	UE responds with 200 OK to IM SERVER
6	←				ĺ	ĺ				User A read a chat message
7					-		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8				\leftarrow	-	+-	-		200 OK	UE C responds with 200 OK to IM SERVER
9								\rightarrow		User C read a chat message

5.3.2.3 Chat 1 to many via MSRP to additional user - Interworking

Use case index UC_MSRP_03_I is used.

Step				Direc	tion				Message	Comment
	U s e r A	U E A	A S/ I M				U E D	U s e r D		
1										Follow UC_MSRP_02_I
2				-		_	→		SEND	IM SERVER sends SEND MSRP with content to UE D
3			\leftarrow	-		_			200 OK	UE D responds with 200 OK to IM SERVER
4								→		User D read a chat message

5.3.2.4 Chat 1 to many via MSRP to additional user - Roaming

Use case index UC_MSRP_03_R is used.

Step			Direc	ction				Message	Comment
	U s e r A	U E A	A S/ I M B	U E B	U s e r B	U E D	U s e r D		
1	Î		-T-				Ť		Follow UC_MSRP_02_R
2				_	_	\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE D
3			←			_		200 OK	UE D responds with 200 OK to IM SERVER
4							\rightarrow		User D read a chat message

5.3.3 Image data via MSRP

Use case index UC_MSRP_04 is used.

NOTE: Call flows show only the first picture transmission from one user to another and back. Other chunk transmissions in case of bigger files follow with SEND requests.

Step				Direc	tion			Message	Comment
	C	U				U	U		
	S	Е				E	s		
	е	Α				В	е		
	r						r		
	Α						В		
1	_	\rightarrow							User A select a picture
2								SEND	UE A sends SEND MSRP with content to UE B
						-		(image)	
3		←	_	-	-	-		200 OK	UE B responds with 200 OK to UE A
4							→		User B look a picture

ETSI

5.4 Test Descriptions

5.4.1 Chat 1 to 1 procedure via MSRP

	Interoperability	7 Test Description									
Identifier:	TD_MSRP_CHAT_0001	· · · ·									
Summary:	User A transfers message with SEND request to User B via MSRP and if endpoint receives a request it must immediately generate response and send it back.										
Configuration:	CF_INT_AS										
SUT	UE_A and UE_B										
References	Test Purpose	Specification Reference									
	TP_MSRP_9000_01	RFC 4975 [10], clauses 5.4 and 7.1									
	TP_MSRP_9000_02	RFC 4975 [10], clause 7.2									
Use Case ref.:	UC_MSRP_01										
Pre-test conditions:	UE_A has_initiated_a_dialog_with UE_B										
Test Sequence:	Step										
	1 User A writes a chat	message									
	2 User B reads a chat i	message									

		Interoperability Test Description
Conformance Criteria:	Check	
	1	TP_MSRP_9000_01 ensure that { when { User A initiates the call to User B } then { UE_A sends the initial INVITE containing an offered session-description indicating a session of MSRP } }
	2	TP_MSRP_9000_02 ensure that { when { UE_A sends SEND_MSRP to UE_B } then { UE_A receives the INVITE200 OK response containing an offered session-description indicating a session of MSRP } }
	1	TP_MSRP_9000_03 step 2 and 6 (SEND): ensure that { when { UE_A sends SEND_MSRP to UE_B } then { UE_B receives the SEND_MSRP containing FromPath_header indicating the msrp_path from SDP attribute within SIP INVITE containing ToPath_header indicating the msrp_path from SDP attribute within SIP 200_response containing Content-Type_header indicating text/plain }
	2	TP_MSRP_9001_04 step 3 and 7 (200 OK SEND): ensure that { when { UE_B receives SEND_MSRP from UE_A } then { UE_B sends the 200_response_MSRP containing FromPath_header indicating the msrp_path from SDP attribute within SIP INVITE containing ToPath_header indicating the msrp_path from SDP attribute within SIP 200_response }

Step			Dire	ction			Message	Comment
	U	U			U	U		
	S	Е			Е	S		
	е	Α			в	е		
	r					r B		
	Α			L				
1		\rightarrow						User A writes a chat message
2		_	 		\rightarrow		SEND	UE A sends SEND MSRP with content to UE B
3		←	 - -		_		200 OK	UE B responds with 200 OK to UE A
4						→		User B reads a chat message
5					₩	_		User B writes a chat message
6		←	 		 _		SEND	UE B sends SEND MSRP with content to UE A
7			 _	—	 \rightarrow		200 OK	UE A responds with 200 OK to UE B
8	Ļ							User A reads a chat message

5.4.2 Chat 1 to many procedure via MSRP

		Interoperability Test Description							
Identifier:		P_CHAT_0002							
Summary:		ansfers message with SEND request to AS IM via MSRP. AS IM transfers							
		to User B and User C like it is predefined in previous SIP dialog. If end users							
		request they must immediately generate response and send it back to AS IM							
	which se	nds response back to User A.							
Configuration									
Configuration:									
SUT References		E_B, UE_C and AS IM							
References	Test Pur	Specification Reference D. 0000_01							
		P_9000_01 RFC 4975 [10], clause 5.4 and 7.1 ID_0000_02 ID_0000_02							
Use Case ref.:		P_9000_02 RFC 4975 [10], clause 7.2							
Use Case lel	UC_MSF	<pre>KP_U2_I</pre>							
Pre-test		E A has initiated a dialog with UE D and UE C							
conditions:	• 0	E_A has_initiated_a_dialog_with UE_B and UE_C							
conditions.									
Toot Seguence	Stop								
Test Sequence:	Step	Licor A writes a chat mossage							
	1	User A writes a chat message							
	2	User B reads a chat message							
	3	User C reads a chat message							
Conformarias	Check								
Conformance Criteria:	Спеск								
Unteria:	1								
	1	ensure that {							
		when { User A initiates the call to User B }							
		then { UE_A sends the initial INVITE							
		containing an offered session-description							
		indicating a session of MSRP							
		}							
		}							
	2 TP_MSRP_9000_02								
	-	ensure that {							
		when { UE_A sends SEND_MSRP to UE_B }							
		then { UE_A receives the INVITE200 OK response							
		containing an offered session-description							
		indicating a session of MSRP							
		}							
		}							
	3	TP_MSRP_9000_03 step 2,5 and 7 (SEND):							
		ensure that {							
		when { UE_A sends SEND_MSRP to UE_B }							
		then { UE_B receives the SEND_MSRP							
		containing FromPath_header							
		indicating the msrp_path from SDP attribute within SIP INVITE							
		containing ToPath_header							
		indicating the msrp_path from SDP attribute within SIP							
		200_response							
		containing Content-Type_header							
		indicating text/plain							
		}							
	4	TP_MSRP_9001_04 step 3,6 and 8 (200 OK SEND):							
		ensure that {							
		when { UE_B receives SEND_MSRP from UE_A }							
		then { UE_B sends the 200_response_MSRP							
		containing FromPath_header							
		indicating the msrp_path from SDP attribute within SIP INVITE							
		containing ToPath_header							
		indicating the msrp_path from SDP attribute within SIP							
l		200_response							
		}							

Step				Dire	ction				Message	Comment
	U s e	U E A	A S/		U E B	U s e	U E C	U s e		
	r A		M			r B		r C		
1		\rightarrow								User A writes a chat message
2		-	→						SEND	UE A sends SEND MSRP with content to IM SERVER
3		←	_						200 OK	IM SERVER responds with 200 OK to UE A
4					→				SEND	IM SERVER sends SEND MSRP with content to UE B
5			←		-				200 OK	UE responds with 200 OK to IM SERVER
6						\rightarrow				User B reads a chat message
7				-	_ -		\rightarrow		SEND	IM SERVER sends SEND MSRP with content to UE C
8			←	-	—		-		200 OK	UE C responds with 200 OK to IM SERVER
9								\rightarrow		User C reads a chat message

5.4.3 Image transfer procedure via MSRP

	Inte	eroperability Test Desc	ription			
Identifier:	TD_MSRP_FILE_0	001				
Summary:	User A transfers file with SEND request to User B via MSRP and if endpoint receives a					
	request it must immediately generate response and send it back.					
Configuration:						
SUT	UE_A and UE_B					
References	Test Purpose		Specification Reference			
	TP_MSRP_9000_0	3	RFC 4975 [10], clauses 5.4 and 7.1 and RFC 5547 [13]			
	TP_MSRP_9001_0	1	RFC 4975 [10], clause 7.2			
Use Case ref.:	UC_MSRP_04					
Pre-test conditions:	UE_A has_initiated_a_dialog_with UE_B					
Test Sequence:	Step					
	1 User A s	elects a file for sending				
	2 User B o	pens received file				
Conformance Criteria:	Check					
	1 TP_MSR	RP_9000_03 step 2 (SEI	ND):			
	ensure tl	hat {	,			
		UE_A sends SEND_MS				
	then { L	JE_B receives the SENL	—			
		containing FromPath_I				
			path from SDP attribute within SIP INVITE			
		containing ToPath_hea				
			path from SDP attribute within SIP			
	200_res		, ,			
		containing Content-Typ indicating image/jpg	pe_header			
	}					

Interoperability Test Description					
2	TP_MSRP_9001_04 step 3 (200 OK SEND):				
	when { UE_B receives SEND_MSRP from UE_A }				
	then { UE_B sends the 200_response_MSRP				
	containing FromPath_header				
	indicating the msrp_path from SDP attribute within SIP INVITE				
	containing ToPath_header				
	indicating the msrp_path from SDP attribute within SIP				
	200_response				
	}				

Step				Direc	tion				Message	Comment
	U s e	U E A					U E B	U s e		
1	Å							B		User A selects a picture
2		_		-			→		SEND (image)	UE A sends SEND MSRP with content to UE B
3		←	_	-	-	_	-		200 OK	UE B responds with 200 OK to UE A
4								→		User B views a picture

The test purposes used in the present document have been originally generated in the TPLan text files in the archive file $ts_{102901V040101p0.zip}$ which accompanies the present document.

227

History

Document history						
V1.1.1	June 2011	Publication				
V2.1.1	November 2011	Publication				
V4.1.1	May 2012	Publication				

228